

KARAO SURVEY REPORT

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November 25, 1986

This report supercedes an earlier report of May 25, 1986.'

ACKNOWLEDGEMENTS

A special note of thanks is due to John and Savina Beray and their family. From the very beginning they have befriended and assisted us in many ways. John and Savina have been our wise advisors, kind friends, and patient teachers.

During the testing, Charles Beray, Penny Beray, and Gerald Beray proved themselves indispensable. Not only did they do an able job of testing, they made walking through the mountains an enjoyable experience. Their genuine friendship will not be soon forgotten.

Our thanks is also due to Efren and Venus Boongaling and their family who sacrificed their summer to come from Santa Cruz, Laguna to live with our family and to help us during the survey. Their friendship has been a gift from God.

Finally, to all of the Karao people we owe a great debt. They have accepted us into their community and have made our first experience of 'allocation' living an enjoyable one. Their genuine concern and friendship have made objectivity difficult.

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1.0 INTRODUCTION

The survey which is the subject of this report is not the first which has been conducted among the Karao people. In 1973, a survey team led by Lee Ballard, who was working among the neighboring Ibaloi people, visited the area, did some testing, and then reported:

I-Karao definitely belongs to the same stock as Ibaloi, but the languages are distinct. Neither Gonzalo or I could understand their conversation (but we did OK when they gave text and slowed down). With intelligibility so high with Ibaloi, Kalanguya, and Ilocano, probably there would be no need for another translation. If, however, evangelical work were to begin there and Ibaloi (or another) proves inadequate, then it should be re-examined.

Actually, they tested only three men, who scored 95%, 75%, and 65% on the Ibaloi test.

In September of 1984 another team, led by John Wimbish, conducted a brief survey. During three days of testing, Ibaloi and Ilocano tape tests were administered. They concluded that neither Ibaloi nor Ilocano would adequately serve the Karao people's spiritual needs and that a translation was needed.

As our family prepared to allocate to Karao late in 1985, the Survey Committee expressed some doubts about the conclusions of the 1984 survey and asked for an extensive survey before beginning the usual tasks involved in a translation effort. We have lived in the Karao area, with some absences, since November 11, 1985. The first 3 months were spent in language-learning and the last 3 were spent preparing for and administering the survey. This, then, is a report of what we have done and the conclusions that we have reached.

2.0 SURVEY GOALS

The question before us as we took up residence in Karao was, "What translation will be adequate for evangelism, individual growth, and church growth in the Karao-speaking area?" To this question there are three possible answers: 1) a major language version (Ilocano); 2) the Ibaloi translation; or, 3) a Karao translation. It soon became apparent to us that the 1984 surveyors were right when they concluded that Ilocano was not an option. About Ibaloi we were less sure. The question became, then, "Is the Ibaloi New Testament adequate for the spiritual needs of the Karao people?"

As we set out to gather data to answer this question we tried to keep before us three essential presuppositions. They are:

- 1) In the final analysis, people, rather than languages, are our concern. Cognate counts and test statistics are only tools to help make the decision whether these people need a translation of their own.
- 2) Intelligibility and acceptability are required. That is, it is not just a matter of whether they are able to use the Ibaloi New Testament, but whether it is acceptable enough that they are happy, or can become happy, to use it.

3) A translation must be intelligible to and acceptable to the Karao people as a whole, not to every person.

Determining intelligibility and acceptability is never easy but there are several approaches which can be used. George Huttar lists the following as possible methods: controlled testing, "ask the informant," ask others, and observation (Huttar 1977:48). We have attempted to use them all. The various methods with a brief description of their survey activities is provided in table 2.1. They are described in more detail in section 5.2.

Table 2.1 Survey methods

CONTROLLED TESTING		"ASK THE INFORMANT"	ASK OTHERS	OBSERVATION
I N T E R V I E W	Proficiency interview	Self-score on sociolinguistic questionnaire	Interview Ibalois about the ability of Karaos to speak and understand Ibaloi	Observe Karaos in situations where Ibaloi is being spoken
	Self-test questionnaire			
	Two tape tests			
A C C E P T		Sociolinguistic questionnaire	Interview Ibalois about their relationships with Karaos	Observe interaction of Karaos with Ibalois

The variety of approaches was intended to help us achieve another of our survey goals. That is, to have a basis for comparing the available methods to determine which might be the most accurate and economical for other survey situations. Therefore, as the results of the survey are interpreted, occasional comments will be made of a theoretical nature. These can be ignored by readers who are interested only in the "bottom line."

3.0 THE KARAO PEOPLE

3.1 A brief description

The Karao people, numbering about 1300, live in eastern Benguet in the municipality of Bokod, about 56 kilometers from Baguio City. They live in two barangays, Karao and Ekip, the former being only 3.4 kilometers by road from Bokod Poblacion. The maps in Appendix 1.0 show the location of these barangays within the province of Benguet and within the municipality of Bokod.

Usually there is easy travel out of the area. A jeepney leaves daily from Karao and passes through Bokod Poblacion and on to Baguio. It is almost always fully loaded. Many from the central sitios of Karao make the 3-hour trip to

Baguio more than once a week. A very large percentage of the people make their living by farming, growing rice for their own consumption and vegetables to sell in Baguio.

Barangay Karao is composed of seven sitios; namely: Ticop, Piley, Chanom (also known as Sahod), Pigingang, Pa-dok, Busok, and Pa-pa. Ticop and Piley are considered the central sitios and are where the elementary school, chapel, and sari-sari stores are found. Population figures as provided in a 1985 report by the Rural Health Unit (which are not guaranteed for accuracy) are found in table 3.1. Most people in the area seem to feel that the figures for Ticop and Piley are low (the central sitios) and some of the others are high.

Table 3.1 Population of Barangay Karao

Sitio	No. of Families	Population	%
Ticop	32	110	12.57
Piley	24	121	13.82
Chanom	20	137	15.31
Pigingang	31	141	16.11
Pa-dok	19	111	12.68
Pa-pa	13	97	11.08
Busok	27	161	18.43
Total	166	878	100

Barangay Ekip stretches almost 8 kilometers from end to end. Peday, its largest sitio, is actually just a short walk from the central Karao sitio of Ticop. Ekip proper is more than 7 kilometers up the valley. Peday used to be part of Karao but a petition filed in 1968 by the residents of Peday and Ekip asked that Ekip be created as a distinct barrio, with Peday as a sitio of the new entity. The request was granted in 1969.

Ekip is also linguistically heterogeneous. Peday, like all of the Karao sitios, uses the Karao language with Ibaloi being the second language spoken. Residents of Ekip Proper, Poudan, and Sacba also have Karao as their first language but about half speak Kalangoya and half speak Ibaloi as their second language. Two other sitios which are part of the barrio, Backian and Palpalan, use Kalangoya, rather than Karao, as the first language. The population figures of the Karao-speaking sitios are listed in table 3.2.

Table 3.2 Population of Barangay Ekip

Karao sitios	No. of families	Population	%
Peday	27	151	35.78
Ekip Proper	30	121	28.67
Poudan	7	84	19.90
Sacba	6	66	15.65
Total	70	422	100

Although most of the Karao people are farmers, that does not mean that they are uneducated. In fact, the level of education, according to information provided by the Rural Health Unit (based upon the 1980 census), is surprisingly high. This is illustrated by table 3.3 showing information for Barangay Karao.

Table 3.3 Educational attainment of residents of Karao - 5 years old and up

Level Reached	Number	%
Kindergarten	72	9.69
Elementary	169	22.75
High School	122	16.41
High School Graduate	79	10.63
College	62	8.34
College Graduate	73	9.82
Vocational	48	6.48
None	118	15.88
Total	743	100

This surprising data seemed to be confirmed as we did the testing. More than once we walked several kilometers uphill to a small sitio and found that the industrious farmer had attended college.

3.2 The origin of the Karao people

One cannot help but wonder how this small group of people with a different language and peculiar customs came to be situated in the Ibaloi area. We know that many Ibalois are puzzled by their presence. During our stay in Karao we heard several different accounts but the one which is most widely believed, and which seems to be the most reasonable, is the one presented by Marvin Atos (1982: 41-47).

According to this account, the ancestors of the Karao people are the Panuypuys. Originally from a place in Bontoc called Palina, tribal warfare forced them to migrate to Diyang in Nueva Vizcaya, hundreds of years ago. During this time in Nueva Vizcaya they survived by practicing headtaking, cattle-rustling and other unpopular activities. This brought upon them the displeasure of the military authorities who launched several campaigns against them, inflicting heavy losses.

Karao history has it that their eventual survival was due to the efforts of a man by the name of Taba-an from Kabayan, Benguet. According to William Henry Scott, Kabayan was then known as the "home of the most famous gold peddlers of the 18th century" (Scott 1974: 306). Panuypuy was apparently known for its gold and Taba-an travelled there to trade. While there he met and married a local girl. When serious trouble erupted, under Taba-an's leadership the Panuypuy migrated to the province of Benguet, descending at Ambuklao, in the present municipality of Bokod, in the last part of the 18th century.

They were turned away by the people of Ambuklao so they moved northeast to Banengbeng, a sitio of Bangao, also in Bokod. Local history has it that while there the settlers discarded some seeds from mangoes that they had brought with them and that the trees can still be identified today. They did not stay long in Banengbeng before they moved to Caradig sitio at Bokod Poblacion, awaiting

their final settlement. Apparently, the elders of Bokod Poblacion and Daklan met to decide where to locate the strangers. Because headhunting was then a problem, the elders decided to settle the newcomers in a place northeast of the Poblacion. This was a strategy so that the migrants would serve as a shield against the headhunters who used to make forays up the valley.

So, the weary travellers settled in the picturesque valley which is now their home. It was eventually named Karao, so the story goes, when a hunter with a dog tracked a deer into the area. Some of the people in the area assisted him and eventually the deer was killed. When the hunter was asked his name he replied, "My name is Karao." The rice paddy where the deer was killed was then named Karao. Later, a Spaniard passed through the area and asked the name of the community. Thinking that the Spaniard was asking for the name of the rice paddy near him, the people answered, "Karao." Since then the community has been known by that name.

4.0 THE KARAO LANGUAGE

In this section an attempt will be made to define the relationship of the Karao language (sometimes called I-karao, but we will continue to refer to it as 'Karao') to Ibaloi, and then to quantify, where possible, the linguistic similarity. Although a worthwhile endeavour on its own, it will serve as a basis for reopening the issue of inherent intelligibility vs. bilingualism--an important issue in this particular survey.

4.1 Genetic relationship

Most researchers have included both Karao and Ibaloi among the Southern Cordilleran languages (Walton 1977: 21; McFarland 1980: 76). Occupying the central part of Pangasinan province, the southern part of Benguet, and the boundary area between Benguet and Nueva Vizcaya, as well as one barrio in Ifugao province, are five languages: Keley-I, Kallahan (sometimes called Kallahan Kayapa but popularly known as Kalangoya), Karao, Ibaloi, and Pangasinan. No attempt has been made to duplicate the work that has already been done in classifying these languages, and the tree that follows is taken from Walton.

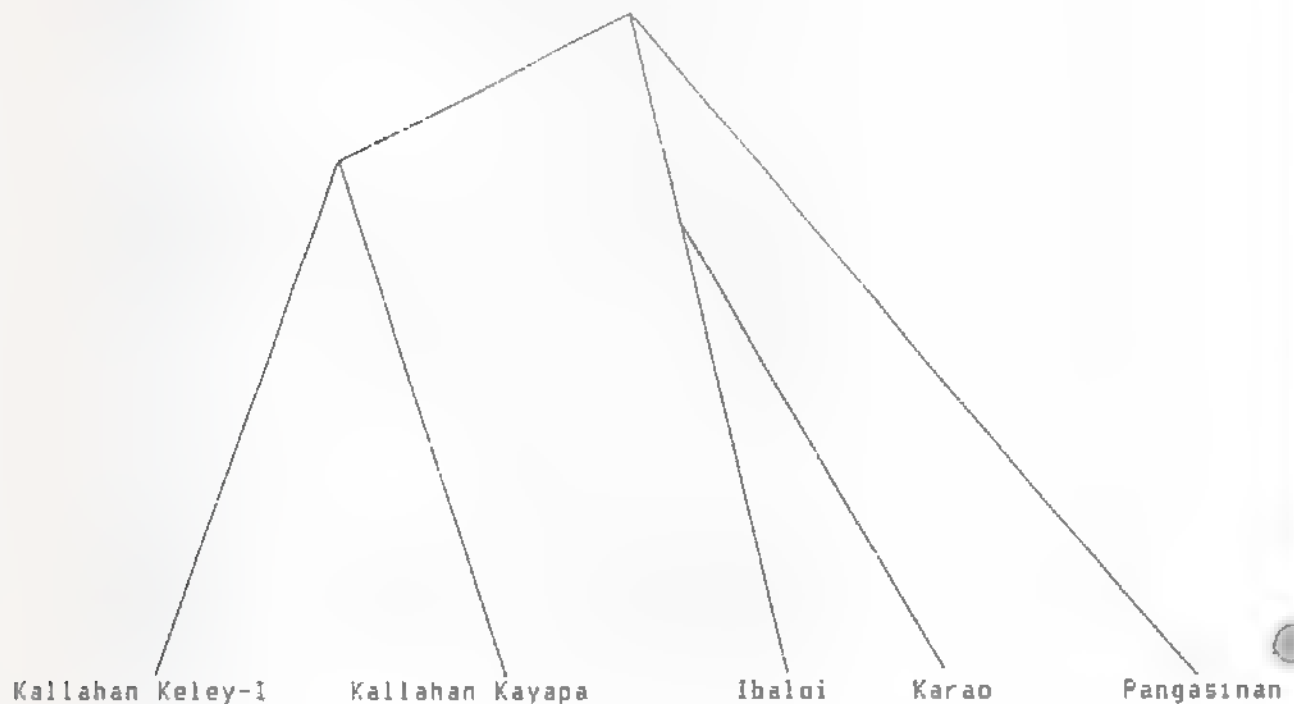
It should be kept in mind, however, that the relationships have been determined based upon percentages of shared cognates, taken from recent word lists. It is possible that the Karao-Ibaloi figure (66% is the percentage that Walton used) is significantly inflated due to borrowings. If it is true that the Karao people originally came from Bontoc, as they say, then it seems likely that this is the case. Although there are all the ingredients here for an interesting comparative linguistic study, such diachronic issues are not crucial in a survey situation such as this where we are concerned with present intelligibility and acceptability.

Figure 4.1 shows the place of Karao in the Southern Cordilleran language group.

4.2 Linguistic similarity

Assuming that Karao and Ibaloi are related languages, as the language tree suggests, it remains to be seen just how similar the languages are. Are they similar enough, for example, for there to be intelligibility? In what respects are they most similar? These questions are the focus of this section.

Figure 4.1 Southern Cordilleran languages



Linguistic similarity is not an easy concept to quantify due to the complexity of the systems involved. In fact, no model has yet been developed which allows an investigator to be able to summarize linguistic similarity in one number. Interestingly, as Simons (1983: 67) points out, the motivation behind the early intelligibility studies was to discover an indirect measure of linguistic similarity. The approach proved to be backwards.

Certain aspects of linguistic similarity have received most of the attention of investigators. Lexicostatistics has been widely used for many years, although not without its detractors. It, in fact, has had to serve as representative of linguistic similarity and has proved to be a reasonable predictor of intelligibility (Simons 1983: 68).

Measuring phonological similarity by means of phonostatistics has also been done in certain situations, although it has not gained the acceptance that lexicostatistics has.

Almost nothing has been done to try to quantify grammatical similarity. The difficulty lies in the fact that the prerequisite is a good analysis of both (or several) languages--an impossibility in the language survey situation.

Until more work is done, particularly in the area of quantifying grammatical similarity, the prospects are extremely dim for a composite quantification of linguistic similarity. Even so, perhaps one day even these frontiers will be conquered.

This survey report is certainly not an attempt to develop any new insights. However, after having spent some time in the area, it seemed to us that using the figure of 66%, the lexicostatic percentage, as a measure of linguistic similarity did not adequately explain the degree of intelligibility--even with little or no contact. Therefore each of the areas of vocabulary, phonology, and grammar will be considered in turn. The methodology is unsophisticated at best. Based upon some comparisons which are found in the Appendices, a few observations will be made.

4.2.1 Lexical similarity

The apparent cognate count that we have done from the word lists that are in Appendix 2.0 yields a percentage of 69%. This is somewhat lower than the 76% that Ballard identified, but a little higher than the 66% that Walton used for his study. It is probably safe to assume that the correct figure is around 70%. It should be noted, however, that some of the words on the Karao list were offered only after a little thought. When we redid the list with another assistant, asking for the word that is usually used, we arrived at a figure of just under 75%. When considering intelligibility, this latter figure should be kept in mind.

There are no obvious classes of words where most of the differences occur. For example, about 70% of the verbs are apparent cognates. A rough count shows that it is the same for nouns, adjectives, etc.

4.2.2 Phonological similarity

The phoneme charts for Karao and Ibaloi which are in Appendix 3.0 reveal that there is a great deal of similarity in the inventory of phonemes. Even the fact that phoneme status has been accorded to /p/, /θ/, and /x/ is tempered somewhat by the observation that Ibaloi also has these phones, although their predictable distribution has resulted in their status as allophones of the respective stops. In some areas, such as Kabayan, the /ɕ/ phoneme is pronounced [tʃ]. Those closest to the Karao area pronounce it [ʃ]. That difference, however, seems to cause few difficulties for the Karao.

The fact that the inventory of phonemes is almost the same might say very little about phonological similarity. It would be possible for two mutually unintelligible languages to draw from the same pool of phonemes. More revealing, we think, would be a phonostatistic analysis. Nothing too sophisticated was attempted for this data, but a cursory examination was done using the method developed by Peter Ladefoged (Simons 1977: 165). This involves using a measure based on binary distinctive features. One compares cognate words to determine the number of features that are different between the pair. Summing the number of feature differences for all cognate pairs and dividing by the number of cognate words, one computes the average number of features different per cognate word.

Two separate calculations done on two different sets of 25 cognate words, yielded .95 average number of features different per cognate word. This indicates that the phonological systems of the two languages are close enough to being the same that cognate words or borrowed words do not undergo major phonological changes. There are, however, a few differences which seem to occur regularly. These are:

- 1) /m/ in Ibaloi in intervocalic position usually becomes /w/ in Karao.
- 2) /k/ in Ibaloi in intervocalic position often becomes /x/ in Karao.
- 3) /t/ in Ibaloi becomes /θ/ intervocalically.
- 4) /p/ in Ibaloi become /p/ intervocalically.
- 5) /g/ in Ibaloi is often /y/ in Karao.

If it were possible to quantify phonological similarity based upon the few observations that have been made, perhaps we would discover that there is greater than 70% similarity between the two systems.

4.2.3 Grammatical similarity

As has already been stated, it is very difficult to say anything definitive about grammatical similarity. The sample of forms that is found in Appendix 4.0 can be used only as the basis for a few general comments.

First of all, it is obvious that the similarities far outweigh the dissimilarities. In fact, the personal pronouns are almost all the same, except for a few minor phonological differences. Similarly, the deictic pronouns, except for the 'specific' set, are different only in a few areas. On the other hand, the case-marking particles demonstrate some significant differences, especially in the 'specific' set.

Concerning verbs, one is struck with just how similar the affixes are. The present tense (or 'progressive' as it might be better called) is different in a few of the conjugations, but apart from that there is a fairly high degree of agreement. In fact, if anything would suggest greater linguistic similarity than that indicated by the lexicostatistical percentage, it is the verb system.

An attempt to quantify the grammatical similarity from this small amount of data by counting morphemes that are the same or almost the same, renders some interesting results. Of the sixty-three nominal morphemes, forty-three are the same--approximately 70%. This agrees quite nicely with the percentage of shared vocabulary. However, thirty-eight out of forty-five verbal bound morphemes are the same--approximately 85%. This harmonizes with the 'feeling' of bilingual Karao that there are very few differences in the affixation of verbs.

In conclusion, then, we think it can safely be concluded that there is at least 75% linguistic similarity between Karao and Ibaloi. In fact, it is our guess that if it were possible to come up with some kind of a mathematical model which would yield a composite figure, due to the phonological similarity and the similarity of the verbal systems, it might be significantly higher.

4.3 Inherent intelligibility or bilingualism?

The issue of linguistic similarity has received some attention in order that we might have as much information as possible with which to address this question. It is important because the answer will suggest the kind of tests that need to be done, as well as provide a basis for their interpretation. We will see, however, that in situations such as this one, the issue is not an easy one.

For years SIL has been involved in the business of intelligibility testing. The techniques developed provide results which help to recognize dialect boundaries and optimal communication networks. More recently, however, attention has been focussed upon the need for testing for bilingualism and the methods which can best be used. Even more recently, considerable interest has been shown in using the interview method and assigning FSI levels, thereby being able to quantify the degree of bilingualism within a community.

However, is there, particularly in the Philippines, really such a clear dichotomy between inherent intelligibility and bilingualism? In the Sociolinguistic Survey Conference held in November of 1982, John Bendor-Samuel presented a paper in which he said, "Probably most, if not all, of the situations we encounter fall into one of the following situations: intelligibility, or bilingualism" (Bendor-Samuel 1982: 13). We are not convinced that the choice is always that clear.

The possible confusion that this choice can breed is illustrated by the two prior surveys that have been done among the Karao people. We are quite sure that Lee Ballard considered Karao a dialect of Ibaloi and proceeded to test for

intelligibility; what we might call 'inherent intelligibility'. The tests that he administered showed that there was high intelligibility with Ibaloi and that there was no need for further work in the area. About ten years later John Wimbish came to the area apparently convinced that he was testing for bilingualism (although his methodology was largely designed for inherent intelligibility). He concluded, "Table 3 . . . shows text scores to be low; too low, for a bilingual situation, to expect the Karao to be able to use Ibaloi" (Wimbish 1984: Addendum). So, he was able to readily recommend that a Karao translation be done.

What is clear, however, is that the situation is not all that clear. We have already seen that Karao and Ibaloi are closely related and that there is a significant degree of similarity. In fact, we would have to conclude that there is enough similarity for there to be reasonable intelligibility. Interestingly, this was borne out by the testing that we did. In several cases subjects with apparently little contact with Ibaloi scored very well on the tape tests even when the questions were also in Ibaloi. Also, we found that people in Kabayan, about two hours away by car, who had had almost no contact with the Karao language, could score very well on a simple Karao story. The nine people tested averaged 94.5% with a standard deviation of 6.5%. So, we would probably be right in concluding that the situation is one of inherent intelligibility.

On the other hand, we found that many Karao people actually are bilingual. That is, due to some motivation, they have learned to speak the Ibaloi language-- and there is quite a large range of bilingual abilities. Therefore we would not be all wrong if we concluded that we needed to test for bilingualism.

Perhaps what is needed is a model of intelligibility which adequately handles situations such as this one. I know that it is not an isolated case. Some might call it 'incipient bilingualism', although according to the usual definition there is very little actual intelligibility between the languages, but the linguistic similarity makes learning easier. In this situation, however, there is a degree of intelligibility which everyone has, due to linguistic similarity, which can be modified by language-learning. Perhaps it should be called something like 'learning modified inherent intelligibility'.

One model of intelligibility which satisfactorily explains this phenomenon is that which has been developed by Gary Simons (1983). In its simplest form, the model suggests that there are two main factors which play a key role in determining the presence or absence of intelligibility. On the one hand, the degree of intelligibility is related to linguistic similarity; on the other hand, the degree of intelligibility is related to the social setting in which the communication occurs. Therefore, intelligibility is comprised of two components: a linguistic similarity component and a social or contact-based component (Simons 1983: 62). A possible formula, then, is:

$$\text{total intelligibility} = \text{similarity-based intelligibility} + \text{contact based intelligibility}$$

The challenge that remains is to develop tests that effectively reveal 'total intelligibility'. More about this later.

5.0 THE 1986 KARAO SURVEY

This section will define the sampling procedure that was used and will then describe how the formal testing was done.

5.1 The sample

Obviously it is possible to make inferences about the linguistic ability of the Karao people only if the sample that was tested is truly representative of the entire population. And, if factors such as education or age might affect their ability, it is important that the size of the sample reflects these parameters within the community. To do this we have used a quota sampling method. In this type of sampling the proportions of the various subgroups of the population are determined, and the sample is drawn to have the same percentages in it (Downie and Heath 1974: 153).

We have chosen to limit the number of parameters to three: age, sex, and education; each was broken into two subgroups. For our purposes, age was divided into 'young'--ages 13 to 39, and 'old'--ages 40 to 65. Similarly, because any schooling beyond elementary is done in the Ibaloi area, we have divided education into 'less educated'--less than high school, and 'more educated'--one year of high school or more. Perhaps more divisions would have been preferred here, but for simplicity's sake we used only one. Obviously sex was broken into 'male' and 'female'.

The proportions were determined based upon the following information drawn from census data and from the estimates of knowledgeable people:

- 1) The 'young' significantly outnumber the 'old'. About 67% of the Karao people aged 13 to 65 fall into the 'young' group and 33% into the 'old'.
- 2) Approximately 60% of those aged 13 to 65 have gone to high school. However, because the level of education has increased over the years, the percentage is not the same in both age groups. We have estimated that about 70% of the 'young' group have attended high school but only about 45% of the 'old' group.
- 3) The population is almost evenly divided between male and female--50% in each. Also, it would seem that the level of education is not significantly different for males and females.

Using the above criteria, we come up with the percentage breakdown of the Karao population shown in table 5.1

Table 5.1 Karao population

	Young - 67%		Old - 33%	
	More Ed. - 70%	Less Ed. - 30%	More Ed. - 45%	Less Ed. - 55%
Male 50%	24%	10%	7%	9%
Female 50%	24%	10%	7%	9%

The second step in quota sampling is deciding the minimum number for each subgroup. We decided that we needed at least five in each subgroup. Table 5.2 displays the number of people that we wished to test (the numbers in parentheses can be ignored for now).

Table 5.2 Karao sample size

	Young - 67%		Old - 33%	
	More Ed. - 70%	Less Ed. - 30%	More Ed. - 45%	Less Ed. - 55%
Male 50%	17 (14)	7 (6)	5 (4)	6 (6)
Female 50%	17 (14)	7 (6)	5 (4)	6 (6)

The total is seventy, and that is how many were initially included in the sample.

This method has also been called 'stratified random sampling', although survey testing is almost never random in the strict sense. To be completely random we would have to find out the names of everyone in all of the subgroups and use a table of random numbers or some other technique to choose the people to test. In this case, as in most field surveys, we have what is sometimes called a 'presenting sample' (Langley 1968: 49). That is, we accepted whoever presented themselves to be tested until each subgroup was completed. That did not seem to introduce a great deal of bias and the sample is random in the sense that no one was turned away because of ability or lack of ability in Ibaloi.

We also did our best to ensure that we tested people from the central sitios as well as some from the more remote sitios. We estimated that about half of the Karao speakers live in the central sitios which have easy access to the Ibaloi area and about half do not. The sample reflects that fact, with about half of the sample composed of residents of the more remote sitios.

Eighty were tested but only seventy were included in the first sample. One was rejected because he had been living in Manila for several years and was no longer fluent in Karao. Another was not included because she refused to speak a word of Ibaloi in the interview although we knew her to be able to speak Ibaloi quite fluently. Eight others were rejected because they could not learn how to take the tape test. Although several attempts were made, they could never seem to make sense out of the Karao tape, and were able to answer only about half of the questions correctly.

Some who read the first report of this survey suggested that it would be better to reduce the size of the sample rather than including in it those who, refused to speak much Ibaloi during the interview, a problem which is discussed in section 5.2.4. So, we returned to Karao and reviewed all of the interview scores with one of the testers. She identified ten who, in her opinion, performed significantly worse in the interview than they were capable of doing. We decided to retain the sample of seventy for the sociolinguistic questionnaire results, but to use the sample of sixty for determining proficiency and intelligibility. The records marked with an asterisk in Appendix 10.0 are the ones that were removed from the sample of seventy.

Some might feel that it is unacceptable to adjust the sample in such an arbitrary fashion. We would not agree. This illustrates one of the benefits of living in an area for some months before and during the survey. We are able to introduce some of the positive aspects of subjectivity because of the relationships that we have developed. On the other hand, the point needs to be made that if we had administered this kind of a survey without this background, it is possible that difficulties of this kind might not have been recognized.

It would appear that reducing the sample in this way has not significantly skewed the results. A glance at the figures in parentheses in table 5.2

suggests that the proportions are almost the same in the two samples. In fact, the only change is the ratio of 'more educated' to 'less educated' among the old. Instead of 45%-55%, it is now 40%-60%. A more detailed breakdown of the composition of both samples is provided in Appendix 12.1.1 - 12.6.2.

It is impossible to be unequivocal, but we are reasonably certain that the sample that was tested is representative of the entire Karao population.

5.2 The survey

Several weeks were spent in preparation for the time of formal testing. Considerable attention was given to reviewing the theoretical issues that came into play and deciding what kind of tests we needed to administer. We decided to use the following, each of which will soon be described in detail:

- 1) A sociolinguistic questionnaire to determine language use and attitudes toward Karao and Ibaloi.
- 2) A 'self-score' test as part of the questionnaire where respondents would estimate their own ability in the languages that they claim to know.
- 3) A 'self-test' questionnaire similar to the one that Steve Cuakenbush used in the Agutaynen survey.
- 4) An interview conducted by two testers and scored by a third from a tape to be able to determine the subject's proficiency according to the FSI levels.
- 5) A second method of scoring the interview based upon weighted factors.
- 6) Three tape tests; one in Karao for screening purposes, a second in Ibaloi with Karao questions, and a third one in Ibaloi with questions also in Ibaloi.

We concluded that our ability in Karao was too limited for us to do the testing ourselves and we also needed at least one native speaker of Ibaloi and two more Karao speakers who were fully bilingual in Ibaloi. Therefore we decided to hire the kind of individuals that we needed and to train them to do the testing for us. The decision, I think, was a good one. The Ibaloi native-speaker was a twenty-seven year-old man; a college graduate who was unemployed at the time. The Karao testers were a thirty-three year-old law student and his eighteen year-old sister who is in her second year of College. Both would be considered level 4+ in Ibaloi. All three proved to be capable testers.

One full week was spent training these three in the various testing techniques as well as preparing the tapes for the tape test. The mornings were spent learning how to conduct and score the proficiency interviews. Although the Ibaloi native-speaker was going to be carrying most of the load during the actual interviews, all three learned both skills. Several hours were spent reviewing the FSI levels and discussing how one recognizes the various levels. An attempt was made to identify the ways in which Karao and Ibaloi differ and how these differences might affect the assignment of the various levels. Several more hours were spent listening to about ten taped interviews (from the Peace Corps training materials prepared by ETS). They proved to be quite helpful. Another helpful activity was the preparation of a "Question Bank" (Appendix 6.0). Included were dozens of questions that were appropriate to this particular situation that were graded from 'easy' to 'difficult', although not necessarily appropriate to any particular level. Finally, about five practice interviews were done and reviewed together.

In the afternoons Ruth and the young lady reviewed together the sociolinguistic questionnaire and the self-test questionnaire which had already been prepared. Each question was discussed in order to ensure that the tester was able to adequately convey in Karao what was intended, and that the self-test questionnaire, which was printed in Karao, communicated clearly. Finally, at the end of the week a couple of practice interviews were done with the questionnaires.

While Ruth was working on the questionnaires, the young men and Randy prepared the tape test materials. The Karao tester wrote the Karao story for the first tape and the Ibaloi tester wrote the Ibaloi story for the second tape. Because we were hoping to have a more complex story that would better test their ability, Randy wrote the story for the third tape and we translated it together into Ibaloi. Throughout the preparations, we tried to follow the procedures as discussed by Casad (1974). We tested the Karao tape with some Karao speakers and found them easily answerable and also tested the Ibaloi tapes in Bokod with Ibaloi speakers. All of the questions seemed appropriate. With the techniques learned and the tapes prepared we were ready to begin the testing.

For the first week we set up our equipment at the elementary school and waited for people to come to us. Occasionally we would have times when we would have to go out looking for people to test, but we usually kept quite busy. We were able to interview up to ten people a day. The second and third weeks were spent hiking through the mountains to the more remote sites. Because we sometimes had to walk several kilometers to reach the place where we wanted to test, along with the fact that some of our subgroups were starting to get full, we averaged only about five people per day for the last two weeks.

The design was that the testing would be in two more or less equal halves--the questionnaires and the interview/tape test. The young lady would do the first half and the two men would do the second. Both were to take about half an hour. As the testing progressed, however, the interview/tape test took about forty-five minutes and the questionnaires only about fifteen minutes. This resulted in an occasional delay for the testees but none seemed to mind very much.

A few more details will now be provided about each of the tests.

5.2.1 The sociolinguistic questionnaire

Generally speaking, the questionnaire (Appendix 5.0) proved to be quite effective. In fact, no adjustments were made to the questionnaire as the testing progressed.

Questions 1 to 14, 16, 17, 18, 22, 23, and 24 were designed to obtain the kind of biographical data that we needed to assess whether such factors as age, education, travel, etc. were influencing their ability in Ibaloi.

Questions 15, 19, 20, 21, 25, 27, 28, and 36 were intended to reveal their language use. It is true that many of the answers became somewhat predictable, but that may not be due to a defect in the questions themselves.

Questions 26, 29, 30 to 35, 37, and 38 were included to gain information about language attitudes. The answers to these were a little less predictable than those to the language use questions. It is possible that some people misinterpreted question 30. It seems somewhat unlikely that they should think that English should be the first language that children should learn. Perhaps they meant the first language after Karao.

5.2.2 The self-score question

Question 15 on the sociolinguistic questionnaire is what we have been referring to as the 'self-score' test. Rather than simply asking the languages that they know, we thought we would try to get them to estimate their own ability by looking at a diagram. So, at question 15, if the testee said that he knew Ibaloi, the tester would respond with, "Look at this diagram. At one end are those who know no Ibaloi. At the other end are those who can speak it exactly like a native speaker. Here are those who can say most things but not everything [pointing to near the middle of the diagram]. Where would you place yourself?"

We were a little surprised that most found it a relatively easy matter to point to a place on the scale that they thought represented their own ability. This question was included to see how the results correlated with the self-test questionnaire and with the actual interview.

5.2.3 The self-test questionnaire

This questionnaire (Appendix B.0) was easily the most disappointing method that we used. It was modeled after the short-form questionnaire that Steve Quakenbush used, although some of the questions were changed. A few of the questions proved to be a problem. Question 3-D, "Are you sometimes unable to finish a sentence because you don't know how to say something in Ibaloi?", would almost always be answered "Yes" until we explained that we were actually talking about leaving a sentence unfinished, not just a pause. Then they always answered "No." Question 4-D, "Do you sometimes make mistakes when you speak Ibaloi?", was almost always answered "Yes." It may not be a good question because even native-speakers make mistakes occasionally when they speak.

The biggest problem, though, was that most people thought they could do just about everything in Ibaloi—even those who later showed that they could do almost nothing. In fact, if question 4-D were removed, many of the 3+ scores would have been 4+ scores, resulting in an even worse correlation with the interview scores. Often the tester would continue with the questions even though a person answered "No" early in the questionnaire (when the 'right' answer was "Yes.") This revealed several anomalies. For example, on more than one questionnaire one of the level two questions was answered negatively but a level five question such as 5-A, "Can you use as many words in Ibaloi as in Karao?", was then answered positively.

We need to confess, though, that we were not optimistic from the beginning that this method would offer us any definitive results. For that reason we did not 'test the test' by using a longer questionnaire and finding the questions which proved to be the most effective. That probably should have been done.

5.2.4 The proficiency interview

After the questionnaires were completed, the testee went to a different area for the interview and tape test. The interview was led by the Ibaloi native-speaker with the Karao tester asking the occasional question. If the person was showing signs of reluctance to speak in Ibaloi, the Karao usually remained silent so that he would not be encouraged to speak in Karao rather than Ibaloi. The Ibaloi tester, a friendly and gregarious young man, demonstrated real skill in keeping the interview more like a friendly conversation than a difficult exercise.

Most of the interviews lasted fifteen minutes, although some were a little bit longer. Almost none were shorter. At the end of the interview the testee would take a short break while the testers filled out their score sheets. Each filled out the form like that in Appendix 7.0. The form has places for scoring the interview in two different ways. The first, called a global score, is simply assigning a level of from zero to five, with the possibility of plus levels when the testee is considered better than a given level but not quite at the next level, based upon the usual description of the FSI levels. The second is called a weighting procedure. The scorers would simply choose which level from A to F best describes the testee for each of the areas of accent, grammar, vocabulary, fluency, and comprehension, based upon the descriptions which are printed on the form. Plus levels were also allowed here.

The testers were never aware of how the weighting procedure was scored. It was scored using the method that is suggested by ETS for Peace Corps testers. It is never recommended as the only method that should be used and was designed more as a check on the global score. That was its primary use here as well. It served to show up any really glaring irregularities, although there were very few. Also, as we shall soon see, the weighting procedure served another important purpose.

All of the interviews were taped so that the tester who was busy with the questionnaires could listen to the interviews later. She also filled out the same form. Therefore, every interview was scored by all three testers. The tapes were also used at the end when it was necessary to relisten to some where the three testers had differed significantly in their scoring.

One unexpected problem which developed was the reluctance of some people to speak in Ibaloi, particularly some of the older ladies. They were demonstrating a pattern which is not unusual--the Karaos speak Karao to the Ibalois and the Ibalois speak Ibaloi to the Karaos. And, interestingly, they seem to understand one another. This is not the norm by any means, but among some of the older people it is the usual method of communication. So, in the interview, instead of stumbling along in the little bit of Ibaloi that they knew, a few carried on the whole conversation, responding even to the difficult questions, but they answered only in Karao. The Ibaloi tester has some relatives in Karao and has some ability in the Karao language, so he was able to understand all of their answers.

Perhaps this problem would not have occurred if both of the testers in the interview room had been Ibalois who had had no prior contact with the Karao community. However, based upon what we have observed, we are not convinced that it would have made a difference. When it did happen, we had no alternative but to score them based upon the little Ibaloi that they had used, although the weighting score would reflect their comprehension ability. However, almost all of these were subsequently removed from the sample.

5.2.5 The tape tests

After the proficiency interview, the testee took three tape tests. The first test was completely in Karao but it proved to be a good indicator of whether the person had learned how to take the test. For the Karao tape the testers were very flexible, rewinding the tape or repeating the question verbally, but some were still unable to answer the questions correctly. In fact, as mentioned before, eight out of the eighty that were initially tested had serious problems and were dropped from the sample.

During the tape test the Ibaloi tester acted as the technician while the Karao tester scored them in this usual way-- 2 points for correct, 1 point for

half right, and 0 points for a wrong answer. The responses deemed half right and wrong were noted on the score sheet and were reviewed later.

After a couple of days of testing, a few questions were dropped from the first two tapes so that they would have no more than ten questions. We had started with thirteen and fourteen and the extra questions seemed to be too time-consuming. The third tape, the Ibaloi story with the Ibaloi questions, started with seventeen questions but it was adjusted to have only fifteen. It was designed to be longer so that it could have greater complexity and touch somewhat different domains. Transcriptions and translations of each of the tests can be found in Appendix 9.0.

When the last tape was finished the testee usually breathed a big sigh of relief. However, we observed no obvious signs that fatigue had played a significant role in the results. Each person was involved with the testers for a little more than an hour but the questionnaires involved very little strain. Still, I think we had reached the maximum of what we would be able to do with one person at one time.

Finally, we presented to the testee a "certificate of participation" and an Ibaloi New Testament as an appreciation gift for their efforts. Concerning the latter, we are not sure that we would do it again. Some who had heard about the New Testaments were thoroughly convinced that our main purpose was to persuade everyone to become Baptists! There is also the possibility that a decision will be made to proceed with a Karao translation and that the Ibaloi New Testament would act as some kind of hindrance to its acceptance. We think the likelihood of that problem developing is quite remote. We did not want to pass up the opportunity to distribute a New Testament that we know many, if not most, can read.

6.0 SURVEY RESULTS

This section will summarize the survey results, discussing language use, attitudes, and proficiency/intelligibility in turn. For language use and attitudes, the results of the questionnaire will be presented for each question in tabular form where appropriate, followed by a brief summary which will introduce any pertinent information gathered through observation or other interviews. The results of the proficiency/intelligibility testing will also be summarized along with some interpretation of the results.

6.1 Language Use

Question 15 asks, "What languages do you know?" More specifically, it asks for their first language, second best language, and third best language. The results are in table 6.1.

Questions 19, 20, and 21 are easy to summarize. With no exceptions, Karao is the language used with all other Karaos--even if the person with whom they are speaking also knows Ibaloi. Also with no exceptions, according to the questionnaire, Ibaloi is used with Ibalois who are unable to speak Karao.

Question 25, "What language is used in church for singing, preaching and praying?", had only three different answers, depending upon which church the person attended. For the Roman Catholics, sixty-one out of seventy surveyed, singing is usually in English and preaching and praying are in Ilocano. The Baptists, six out of seventy, sing, preach, and pray in Ibaloi. Three claimed to be affiliated with the Worldwide Church of God where English is the only language used.

Table 6.1 Languages spoken

	Language	Number	%
First Language	Karao	70	100.0
Second Language	Ibaloi	63	90.0
	Kalangoya	4	5.7
	Ilocano	2	2.9
	English	1	1.4
Third Language	Ilocano	48	68.6
	Ibaloi	7	10.0
	Kalangoya	7	10.0
	English	5	7.1
	Tagalog	3	4.3

Perhaps a comment would be appropriate here about why the Baptists use Ibaloi. About two years ago the pastor of the Kabayan Baptist Church started holding Bible studies in Karao. He is an Ibaloi native-speaker and would use both Ibaloi and English. During the past eighteen months, at least twenty have been converted and have formed a church. The pastor continues to come from Kabayan almost every Sunday to hold services, along with a group of five or six men from the Kabayan church. So, Ibaloi is the language that is used for singing and preaching. Even during the Bible class, the teacher, who is a bilingual Karao, uses Ibaloi because of the presence of the Ibalois. The pastor has told me, however, that he thinks that not everyone that attends fully understands what he is saying. Also, he believes that his efforts to evangelize the more remote Karao sitios have been unsuccessful because he is not able to use the Karao language.

Question 27, "What language do you use to pray in, think in, and dream in?", was included to learn a little about the inner speech patterns of Karao native-speakers. The responses concerning the language of prayer are probably influenced somewhat by the languages that are used in the churches for that purpose. The results are in table 6.2.

Table 6.2 Languages of inner speech

	Language	Number	%
Praying	Karao	55	78.5
	English	6	8.7
	Ibaloi	5	7.1
	Ilocano	4	5.7
Thinking	Karao	69	98.6
	English	1	1.4
Dreaming	Karao	70	100.0

Question 28 asks, "What language is the easiest to use to express your deepest feelings?" Sixty-five out of seventy (92.9%) responded that Karao was the easiest language for that purpose--that was not a surprise. Of the others, three (4.3%) felt that English was the easiest and two (2.8%) felt that Ibaloi was the easiest. The reason usually given was that these other languages had broader and richer vocabularies.

Question 36 asks, "In what language do you do most of your reading?" Table 6.3 summarizes the results.

Table 6.3 Languages used for reading

Language	Number	%
English	43	61.4
English/Tagalog	11	15.7
Tagalog	4	5.7
Ilocano	4	5.7
English/Ilocano	2	2.9
Ibaloi	2	2.9
No Ability	4	5.7

These results are not surprising. A study done in 1968 by the Language Study Center of the Philippine Normal College found that not only do Filipinos do most of their reading in English, they also prefer to read in English (Sibayan 1975: 119).

In summary, then, the survey reveals that most Karaos speak Ibaloi as their second best language, although probably about 10% speak Kalangoya as their second language. Most Karaos speak Ilocano as their third language. Karao is for almost all the easiest language for them to use and is the language that is always used with other Karaos. The only exception would be in a church situation where Ibaloi or Ilocano might be used. With Ibalois, Ibaloi is always used. English is the language that most use to do their reading.

It remains to be asked whether these results agree with our observations and other interviews. Generally speaking, they do. There is, however, one significant point of difference. It has been our observation that Karaos will sometimes continue to speak Karao when talking with an Ibaloi. Some have also told us that they do, even some who have almost native-speaker ability in Ibaloi. Our discussions with some neighboring Ibalois have revealed the same information. According to them, not all Karaos try to use the Ibaloi language with them. The situation, then, is not quite as clear as the questionnaire would suggest.

6.2 Attitudes

The ten questions on this part of the questionnaire are best considered as two groups of five. Questions 26, 29, 30, 35, and 37 were designed to reveal the attitude of the Karao people to their own language and to the prospect of literature in it. Questions 31, 32, 33, 34, and 38 were intended to disclose the attitude of the Karaos to Ibaloi people, their language, and their literature. The results will be presented in that order.

Question 26 asks, "What language would you like to have used in church?" The answers offered are in table 6.4.

Table 6.4 Preferred language for church

Language	Number	%
Karao	52	74.3
English	8	11.4
Ibaloi	5	7.1
Ilocano	3	4.3
Tagalog	2	2.9

Question 29 asks, "What language do you like speaking best?" The results are in table 6.5.

Table 6.5 Spoken language most liked

Language	Number	%
Karao	53	75.7
English	7	10.0
Ibaloi	4	5.7
Ilocano	2	2.9
Tagalog	2	2.9
Kalangoya	1	1.4
Kankanaey	1	1.4

Apart from the addition of Kalangoya and Kankanaey in the last table, it is interesting how similar the two tables are. When asked why they gave the answer they did to Question 29, some notable answers were given. Almost all of the people who said they like to speak Karao best gave the reason that it is the easiest language for them. Those who chose the other languages, however, usually said that they liked to speak them because they wanted to learn to speak them better. Most of those who chose Ibaloi as the language they like speaking best gave the reason that it was understood in more areas.

Question 30 asks, "What language is it best for children to learn first?" As already mentioned, this question may not have been always understood. Those who said that English is the best language to learn first usually gave the reason that it is best if the children could learn it at a young age because it is "necessary for survival." The reason given for Tagalog, of course, is that it is the national language. The results are displayed in table 6.6.

Question 35 asks, "In twenty years do you think Karao will still be spoken?" Fifty-nine (84.3%) answered "Yes," ten (14.3%) answered "No," and one (1.4%) was unsure.

Question 37, "Do you wish that you had books in the Karao language?", seeks to discover the attitude of the Karaos to the prospect of literature in their own language. The response was unanimously "Yes." Almost all said that Karao books would be desirable because they would preserve the language and would be much easier for the old folks and uneducated to read.

Question 31, "Is it good for Karao people to learn Ibaloi?", designed to detect attitudes toward the Ibaloi language, was almost unanimously answered "Yes"--sixty-nine out of seventy (98.6%). Almost all gave the reason that they had to deal with Ibalois to survive and it was necessary to know their language. The lone person (1.4%) who answered "No" said that he "just loves Karao."

Table 6.6 The best language for children to learn first

Language	Number	%
Karao	31	44.3
English	28	40.0
Tagalog	6	8.6
Ilocano	4	5.7
Ibaloi	1	1.4

Question 32 asks, "Does it bother you when you have to speak Ibaloi?" Fourteen (20%) replied that it did bother them and fifty-six (80%) that it did not. The reason given for being bothered was that they were not able to use the language very well.

The next two questions investigate the attitude of the Karaos toward the Ibaloi people. Question 33 asks, "Do you think most Karao people enjoy being with Ibaloi people?" The large majority, fifty-eight (82.9%), felt that most Karaos enjoy being with the Ibalois, because they enjoy their friendship. Nine (12.8%) felt that most Karaos do not enjoy being with the Ibalois. They said that the Ibalois are different from the Karaos and that sometimes misunderstandings occur. The balance, three (4.3%), were not sure.

Question 34 asks, "Have you ever felt looked down on by Ibaloi people?" We were a little surprised by the results. Thirty-one (44.3%) answered "Yes" while thirty-nine (55.7%) said "No."

The last question probes their attitude toward Ibaloi literature. When asked, "If there were no Karao books would you be satisfied with reading Ibaloi books?", fifty-nine (84.3%) answered "Yes" and eleven (15.7%) answered "No." Those answering "Yes" said that Ibaloi was also easy for them to understand. The ones who answered negatively said that they would not be satisfied because some are unable to understand Ibaloi and they would much prefer a Karao book.

To summarize, then, about the attitude of the Karao people to their own language, it can be concluded that they have considerable linguistic pride. It is obviously not so strong that they are unwilling to use other languages. However, it seems that after Karao, they have a greater preference for (although not necessarily more ability in) the languages of wider communication such as English, Ilocano, or Tagalog. Most Karaos are convinced that their language will survive, and all, without exception, are in favour of its preservation.

The attitude of the Karao people toward the Ibaloi people and language is a little more ambivalent. They are resigned to the fact that they have to learn Ibaloi if they are to survive in the area, although those with less ability do not enjoy the prospect. Concerning the Ibaloi people themselves, most Karaos do not display any great reluctance to associate with them. On the other hand, more than a few feel that the Ibalois look down upon them. It should be noted here, that it is not lack of ability in the Ibaloi language which produces this feeling. In fact, of the thirty-one who said that they had at some time felt looked down upon by Ibalois, more than half were tested to have level 3 ability or better in Ibaloi. This feeling aside, the Karaos are willing to use Ibaloi literature, although it is not their first choice.

Our observations and other interviews support these questionnaire results. We were never able to observe any signs that the Karaos depreciated their language--quite the opposite, in fact. Similarly, we observed no significant indications that the Karaos felt inferior to the Ibalois. They are proud of

their cultural traditions and their language. Also, we could see no reluctance on the part of the Karao people to associate with the neighbouring Ibalois. On the contrary, the number of intermarriages is quite large. In fact, in 70 marriages that we investigated, about half involved intermarriage with Ibalois. When we questioned Ibalois, they usually expressed a degree of puzzlement that the Karaos would live so close to them and have a different language and different traditions, but we were never able to sense a feeling of superiority.

6.3 Proficiency/intelligibility

In this section the results of the proficiency and intelligibility tests which are found in Appendix 10.0 will be summarized.

6.3.1 Proficiency tests

For our purposes we will refer to the self-score question, the self-test, and the interview as proficiency tests and will consider them in that order.

6.3.1.1 The self-score question

One fact that is evident when viewing the scores on this test is that people had a tendency to choose the middle levels for themselves. No one felt that they were level 0+ and, similarly, no one considered themselves 4+ either. The large majority placed themselves near the middle or slightly to the right of the middle of the scale. The breakdown of scores is in table 6.7.

Table 6.7 Self-score scores

Level	Number	%
0+	0	0.0
1	2	3.3
1+	3	5.0
2	7	11.7
2+	12	20.0
3	11	18.3
3+	18	30.0
4	7	11.7
4+	0	0.0

6.3.1.2 Self-test

The reliability of this test has already been questioned but at least there are people at both ends of the scale--a small consolation. More than half, however, are scored at the 3+ level. A breakdown of the scores is in table 6.8.

Table 6.8 Self-test scores

Level	Number	%
0+	3	5.0
1	1	1.7
1+	3	5.0
2	1	1.7
2+	8	13.3
3	5	8.3
3+	34	56.6
4	1	1.7
4+	4	6.7

It is apparent that there is not a great deal of agreement between the two tests, although perhaps the overall effect is not all that different. Bar graphs of the self-score and self-test results can be found in Appendix 12.7 - 12.8.

6.3.1.3 The interview

The data sheet in Appendix 10.0 shows the 'final' global scores which the three testers assigned to each of the seventy interviewees. Some adjustments were made to the original scores before the scores became final, although for the most part there was a good deal of consistency. Before any adjustments, the results looked like this. For fourteen interviews all three testers had given the same score. For thirty-two others, two scores were the same and the other was only a half level different. For nine more, all three scores were different but there was only one full level between the three. So, fifty-five out of seventy of the sets were completely acceptable for our purposes and easy to average. Of the fifteen 'unacceptable' sets, five were where two scores were the same and the other was a full level away. These also could have been easily averaged if we had chosen to. For one other, two scores were the same and the other was a level and a half away. For seven more, all three scores were different and there was a level and a half between them. For the last two, the three scores were different and there was two levels between the three.

All fifteen of the unacceptably scored interviews were listened to again, discussed, and rescored until the scores fell into one of the acceptable categories. These final scores, then, were averaged in the following way. Where all three were the same or where two were the same and the other a half level different, the majority score was taken. Where all three scores were different with one level between the three, the middle score was taken as the average. The averaged scores are also listed on the data sheet and it will be these scores which will concern us from here on, keeping in mind that the sample of sixty is being used for all of the calculations.

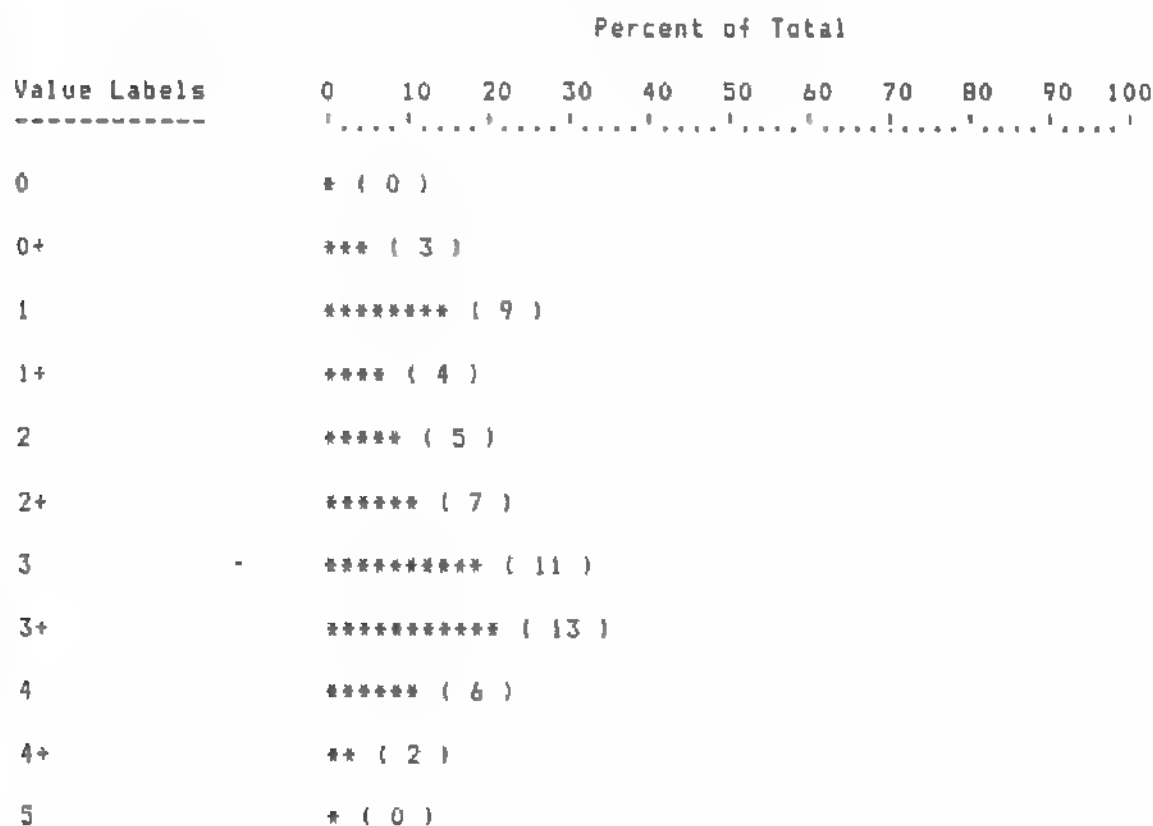
A glance at the scores reveals that there is a more even distribution throughout the levels than is true with either of the first two tests. A breakdown of scores is in table 6.9.

Table 6.9 Averaged interview scores

Level	Number	%
0+	3	5.0
1	9	15.0
1+	4	6.7
2	5	8.3
2+	7	11.7
3	11	18.3
3+	13	21.7
4	6	10.0
4+	2	3.3

The distribution of the scores throughout the sample group can best be visualized by using a bar graph as in figure 6.1.

Figure 6.1 Proficiency levels



Perhaps a few tentative observations can be made at this point. If we assume that an individual needs to have level 4 ability to be able to effectively use the Scripture in a second language, we would have to conclude that only 13.3% of those tested have sufficient ability. To my knowledge, however, this assumption has never been proved. In fact, according to Steve Quakenbush (personal communication), many are now saying that level 3 or 3+ would be adequate for reading the Scripture. If we agree that level 3+ or

better would be sufficient, then 35% of the sample are capable of using Ibaloi. If we concede that level 3 is adequate, then 53.3% would have the necessary ability. We will return to this question again.

6.3.2 The intelligibility tests

Those tests which we are calling intelligibility tests are the tape tests and the comprehension score from the interview.

6.3.2.1. The tape tests

The scores for the three tape tests are in the data provided in Appendix 10.0. The scores for the first test (the 'hometown' Karao tape) have not been raised to 100%, nor have the other two test scores been adjusted. The adjustment would have been minimal and is not necessary in this case where a single case of unidirectional intelligibility is being investigated. The tape test results are summarized in table 6.10.

Table 6.10 Tape test scores

	Hometown Test	Ibaloi Test 1	Ibaloi Test 2
Number	60	60	60
Mean	98%	93%	90%
Standard Deviation	4.4%	10.2%	11.1%

Generally speaking, the Karaos did not have difficulty with the Ibaloi tapes. As mentioned earlier, we attempted to make the third tape more difficult than the second and with the questions also in Ibaloi. In the first survey report we said that we thought that our efforts had failed and that the difference in the means was probably statistically insignificant. That, in fact, is not true. A matched pairs t-test was run on the scores and the results are found in Appendix 12.17.3. One can conclude that the difference in the means is statistically significant at the 98% confidence level. The results of the tape tests will be considered in a little more detail in section 7.3.

6.3.2.2 The comprehension scores

The score that is being referred to is in the last column of the score sheet in Appendix 10.0. It really is not a separate test but it measures intelligibility rather than proficiency so it will be considered here. During the practice interviews we began to wonder if the global proficiency score would be an accurate indicator of the level of comprehension. Therefore, we decided to pay close attention to the comprehension component of the weighted score. The interviewers knew that the level, from A to F (from the proficiency descriptions for the weighting procedure), assigned by them would be more important than the levels for the other components. Although the level descriptions are in Appendix 7.0, perhaps it is helpful to reproduce them here:

- A. Understands too little for the simplest type of conversation.
- B. Understands only slow, very simple speech on common social and touristic topics; requires constant repetition.
- C. Understands careful, somewhat simplified speech, with considerable repetition and rephrasing.
- D. Understands normal educated speech quite well, but requires occasional repetition or rephrasing.
- E. Understands everything in normal educated conversation except for very colloquial or low-frequency items, or exceptionally rapid or slurred speech.
- F. Understands everything in both formal and colloquial speech to be expected of an educated native speaker.

It should be noted that plus (+) scores were also permitted. That is, if the interviewer felt that the person was not quite level E but was more than level D, the score of D+ was given.

The three scores were then averaged using a similar method as that used to average the proficiency scores. Table 6.11 shows the distribution of the scores.

Table 6.11 Averaged comprehension scores

Level	Number	%
A	0	0.0
A+	0	0.0
B	1	1.7
B+	1	1.7
C	9	15.0
C+	1	1.7
D	15	25.0
D+	9	15.0
E	13	21.7
E+	9	15.0
F	2	3.3

The graph in figure 6.2 displays the same information using a bar graph.

Some observations can be made. A comparison of these scores to the proficiency scores reveals an apparently close correlation. The most significant difference is that the comprehension scores seem to be shifted somewhat higher than the proficiency scores. For example, there is no one at the A or A+ level, and only one each at the B and B+ levels, but there are several at the 0+ and 1 levels in proficiency. There is also a greater proportion of the sample group in the higher levels. This is what we should probably expect to see. We would assume that linguistic similarity would provide some level of comprehension--perhaps in the B or C range. Also, the higher comprehension scores reflect the phenomenon of those who have learned to understand Ibaloi but are not so interested in speaking it.

Figure 6.2 Comprehension scores

Value Labels	Percent of Total										
	0	10	20	30	40	50	60	70	80	90	100
A	* (0)										
A+	* (0)										
B	* (1)										
B+	* (1)										
C	***** (9)										
C+	* (1)										
D	***** (15)										
D+	***** (9)										
E	***** (13)										
E+	***** (9)										
F	** (2)										

It is probably safe to assume that anyone with level E comprehension or better would easily be able to use a full range of literature in the second language. If that is the case, the data shows that about 40% of the group would be able to use the Ibaloi scripture. Based upon our own observations, we would be willing to suggest that those scored level D+ also have the necessary ability. If so, 55% of the Karao people have sufficient ability to use the Ibaloi New Testament.

Often it is easier to determine who does not have enough ability. Based upon these comprehension scores, we can say that those at level B, B+, C or C+ would fall into this category--that is, about 20%. About the remaining 25 %, it is difficult to be sure. Probably some could, but many could not.

6.4 Statistical insights into bilingual proficiency

Having concluded that there is a wide range of proficiency in Ibaloi, does the statistical analysis in Appendix 12 provide any insights into what are the primary factors influencing bilingual proficiency? In a word, yes. There is little doubt that the determining variable is education. That, of course, does not come as a surprise, realizing that education beyond the elementary level is in the Ibaloi speaking areas.

Appendix 12.15.1 displays a breakdown of the proficiency scores according to other factors. We realize that the proficiency scores are based upon an ordinal scale and properly should not be averaged in this way. However, it is

less time-consuming than noting how many are found at each level and provides an indication of what the true picture is.

First of all, we see that age does not seem to be an independent factor. The four age groups from age twenty through age fifty-nine show mean proficiency scores that are quite close. Also, we notice that sex is probably not a factor. The males averaged 2.7 and the females 2.5. The difference of scores based upon residence might lead one to believe that that is a factor. It would be significant if the same kind of sample was drawn in each location. Unfortunately that was not the case, nor was it even possible. The ones tested from Chanom, for example, were almost all in the 'less educated' group. It is true that there is a close correlation between proficiency and the frequency of travel out of the area. What the figures do not show, however, is that most of the ones leaving the area daily are the ones attending high school or college.

The breakdown according to educational attainment reveals an apparently significant difference in the means of those who have not attended high school and those who have. Elementary graduates, for example, averaged 1.95 while those who had some high school but did not graduate had a mean score of 2.83. The college graduates had the highest scores with a mean of 3.75. Therefore, we can hypothesize that the key factor affecting bilingual proficiency is education. More specifically, education beyond elementary is the most significant contributor to proficiency in Ibaloi.

To test this hypothesis two tests were run. First of all, a chi-square test was run to see if education and proficiency are actually independent of each other. The test results are in Appendix 12.16.1. The test determines whether the observed frequencies in the cells deviate markedly from the expected frequencies if the two variables were not related to each other. The resulting chi-square of 81.563 and a probability of chance of .002 indicates that there definitely is a statistical relationship between the two variables. For the sake of comparison, the same test was run to see if age and proficiency were independent of each other. The results are in Appendix 12.16.2. The chi-square is 49.91 and the probability of chance is .270. At the very least we can say that there is a much greater relationship between education and proficiency than between age and proficiency.

Secondly, the proficiency scores were divided into two groups according to whether the testee had attended high school or not. The scores were averaged and a t-test was run on the means to determine whether there is a significant difference. The test results are in Appendix 12.17.4. The t statistic of 6.757 indicates that the probability of t is .000, that is, there is almost no possibility that the two means are the same.

These tests simply confirm what is observable. The most significant factor affecting bilingual proficiency is education beyond elementary because it is available only in the Ibaloi area.

7.0 AN EVALUATION OF THE SURVEY METHODS

In this section we will make some observations about the sociolinguistic questionnaire, the proficiency tests, and then about the intelligibility tests, comparing their results.

7.1 The sociolinguistic questionnaire

It is of interest to know whether a reasonably reliable decision could have been made about the Karao situation based upon the results of the questionnaire.

It is an economical method if it is reliable. Concerning language use and attitudes, the information seems to agree quite closely with what is observable. Also, it provides information that is not available through observation alone. Therefore, we must conclude that it is a useful tool for that purpose.

Language proficiency is more difficult to measure with a questionnaire. As we read the answers to the pertinent questions while the survey was progressing, we got the impression that most of the people used Ibaloi often and were able to use it just about as well as their first language. However, the testing revealed that they were not as good as they thought they were. Of course the testees were not really thinking in terms of using Ibaloi in a multitude of situations when they responded to the questions. We assume that because they are able to speak fluently in Ibaloi for daily matters, they think that they have full use of the language. Many, however, do not.

We must conclude, then, that a questionnaire without any kind of testing to verify the results is an unreliable instrument with which to measure language proficiency.

7.2 The proficiency tests

What we would really like to know is how each of the three tests correlates with capital 'P' proficiency. That is, which really comes closest to being an accurate index of reality? Unfortunately, we can never know what actual proficiency is. We can only hope that our tests of performance are coming close to revealing true competence. Most would agree, however, that the interview method of testing probably comes closer than the other two methods that we used. On the other hand, it is by far the least economical of the three. Therefore we need to know if the other two methods correlate closely enough to be useful.

Put simply, the results are not encouraging. When the self-score question results were compared to the interview scores (see Appendix 12.14.1) using the Pearson product-moment correlation, the result was a positive relationship ($r = .74$). When the same test was used to compare the self-test results with the interview scores (see Appendix 12.14.2), the result was a weaker positive relationship ($r = .54$). When Steve Quakenbush used a similar self-test questionnaire he noted a correlation of .56 with the interview scores. ETS has also experimented with a similar questionnaire and has found a correlation of about .60 with the interview (Frith 1980: 20). Perhaps that is the best that can be hoped for. If it is, it would seem that the usefulness of the method is quite limited. In fact, the results of this survey would indicate that it might be as effective simply to ask someone where they would place themselves on a scale of 0 to 5 as it is to administer a self-test questionnaire. However, it would seem reasonable to assume that the self-test would be the more reliable measure if the questionnaire was developed with a little more care.

What about the interview itself? The interview method has had a good track record for measuring bilingual proficiency since it was developed in the early 1950's by the Foreign Service Institute. There are, however, some significant differences between the situations where it has been most effective and situations such as this one.

First of all, it has usually been used in a situation where the individual is fully aware of what is going on. Initially it was used to test prospective Foreign Service employees. Since then it has been used in a variety of other testing situations (Peace Corps, etc.), but in most cases the testees are relatively sophisticated and know that it is a test. In places such as this one where many of the people have difficulty understanding what linguistic testing

is all about in the first place, certain problems developed. Most notably, some refused to speak in Ibaloi and used only Karao. Others shifted into Karao when they reached the limit of their verbal abilities in Ibaloi. As far as they were concerned, they were involved in a conversation and the important thing was to communicate--not to demonstrate how much ability they had in the Ibaloi language. Scoring those people was understandably difficult.

Secondly, it has usually been used to assess proficiency in a second language that is not closely related to the first. In such cases the testee demonstrates the ability that he has based upon what he has learned. Things are generally quite clear-cut. To the extent that he has learned the language, he is able to carry on a conversation. In the Karao situation, however, which we have called 'learning modified inherent intelligibility', there is a good deal more fuzziness. Everyone understands a certain amount and is able to produce somewhat similar speech due to linguistic similarity. Others have considerably improved their ability to comprehend the second language but have not been motivated to develop verbal skills. Still others have built upon the linguistic similarity and have become fully bilingual in all of the language skills. We are not convinced that the oral interview adequately provides a measure which takes into account these factors.

Thirdly, the FSI interview assesses oral proficiency. It is true that comprehension is considered as one of the components, but that comprehension is measured by the testee's ability to respond verbally. Under normal circumstances the proficiency interview does not provide a completely adequate picture of intelligibility (which is what we set out to measure), especially in situations where there is the possibility that there is more intelligibility than verbal ability.

It is important to realize that these deficiencies are not just mere annoyances. They can contribute to the interview method providing an inaccurate picture of a particular language group's ability to use literature in a related dialect. Some have failed to understand this, maintaining that the proficiency interview measures ability and it does not matter whether that ability is due primarily to linguistic similarity or to learning. But, the interview measures oral proficiency not intelligibility and they are not the same.

Perhaps a hypothetical example will illustrate the point. Let us assume that language A and language B are related, with about 80% shared vocabulary. The social situation is such that a small group of language A speakers hold municipal positions and so learn language B. Another group of A speakers have enough contact with language B that they can understand the full range of language in B but possess little oral ability. The remainder, about half of the A speakers, have only the ability to understand B due to the similarity of the two languages.

Surveyors come to the area and observe that bilingualism is a factor. So, they train some testers and test the A speakers for their proficiency in B. The results show that most of the population is less than level 2, although almost 15% are tested at level 3+ and above. With these results the surveyors conclude that speakers of language A need literature in their own language.

This conclusion would be justified based upon the results of the proficiency test. However, the possibility still remains that there is adequate intelligibility between the dialects even when inherent intelligibility has not been modified by learning. A test of a different kind might indicate that those who were considered level 0+, for example, actually have adequate inherent intelligibility of language B to use literature in that language. The proficiency interview would, in effect, be painting a worse picture than actually exists.

In conclusion, the oral proficiency interview does not appear to be a

particularly effective tool for testing where there is intelligibility with an overlay of bilingualism.

7.3 The intelligibility tests

Casad-style tape tests were administered during this survey for two reasons. Firstly, we hoped that the results might help us determine whether the Ibaloi Scriptures would serve the Karao speakers. Secondly, we hoped to observe certain strengths or weaknesses that might become evident when subjected to comparison to other methods.

The practical difficulties that we experienced while administering the tape test are not new ones. The method has been used for long enough for most of the problems to have been adequately discussed. It is enough to say that we experienced most of them first hand. It was not an easy matter to get the kind of texts that we wanted even though we were able to work with assistants who were fully literate and functional in English. It was still a problem. Also, we did not anticipate the number of people who would find wearing headphones a new and difficult experience. Nor did we think that almost 10% of those we first tested would do so poorly on the hometown tape. Although we tried repeating the tape, removing the headphones, and asking the questions orally, some never did learn how to take the test. The importance of administering the hometown tape became very clear to us.

The most striking thing that we notice when we look at the test results is that the scores are quite high. A mean score of at least 90% is quite respectable. And these scores are based upon two different tapes with different subject matter, complexity (we thought), and length. The second even has the questions in Ibaloi. The scores seem higher than we would expect when compared to the interview scores. What is the source of this discrepancy?

One answer might be that the particular tape tests that we administered, or perhaps these kind of tests in general, were not adequate to measure intelligibility with sufficient sensitivity. Perhaps it is time to rethink the theoretical understanding of inherent intelligibility. According to a lecture given by Joe Grimes in Manila in 1984, inherent intelligibility is by the very nature a level 5 activity. Presumably, then, because intelligibility is due to linguistic similarity, and that similarity is more or less constant throughout the language, a test at one level will be an indication of intelligibility throughout the language.

It seems likely, however, that intelligibility in such a situation is due to linguistic similarity and redundancy. When an individual hears another language that is somewhat similar to his own, he is able to make sense out of some of the unfamiliar items by use of the redundancy strategy. That is, because language is always somewhat redundant, some of the holes can be 'guessed at' and filled in thereby perceiving the complete utterance (Simons 1983: 94). However, this strategy is employed with different effects with different kinds of language. Psycholinguists have demonstrated that it is more difficult to fill in the gaps in a psychology journal article, for example, than it is in an ordinary piece of prose (Taylor 1976: 180). This may be because the words that are used in the former occur with considerably lower frequency. Or, it may be that the mind is so absorbed with the complex linguistic structures or abstract concepts that it is unable to fill in the linguistic blanks. So, if a test of comprehension is given based upon a somewhat simple piece of prose, the score will probably be higher than it would be for more complex or conceptually abstract language. The bottom line is that a tape test only gives a measure of intelligibility at the level of language that is tested.

The developers of the tape test realized this, of course. According to Casad,

The text used as the basis for an intelligibility test is assumed to be a representative speech sample of a particular dialect. The degree to which the range of structures sampled by any one text adequately reflects the range of structures in the total body of speech from which the text is taken can be said to be a measure of the content validity of that text (1974: 101).

Unfortunately, a problem that the early users of the tape test found was that it was extremely difficult to construct a test that did not reflect differential I.D., etc. Because the test seemed to lack validity when the hometown scores fluctuated so wildly, modifications were made, such as the use of cue sentences. These changes produced greater uniformity and higher scores "at the cost of some loss in the sensitivity of the test in its measure of levels of intelligibility" (Casad 1974: 103).

Another answer is that the tape test scores are inflated because of bilingualism. This is undoubtedly true. Some of the testees were fully fluent in Ibaloi and so it is not unexpected that the mean score would be high. Interestingly, we have noted that in a situation of learning modified inherent intelligibility, the oral proficiency interview tends to give artificially low results. Conversely, intelligibility tests might tend to give artificially high results. This would be the case if the test results are considered as if they are a measure of inherent intelligibility. They are not, so the usual thresholds are not applicable.

Probably the apparent discrepancy between the interview scores and the tape test scores is due to a combination of the two factors. It might well be true that the tape tests were too "easy" and not really representative of the whole language and so the scores were skewed upwards. Also, the scores were high because of the influence of both passive and active bilingualism. So how does one interpret the results of the tape tests? If the scores are averaged, what constitutes an adequate mean? If they are not, how does one decide what score indicates adequate intelligibility? All those above 90%? All above 95%? It is apparent that using Casad-style tape tests where there is learning modified inherent intelligibility is not without potential pitfalls.

8.0 ASSESSING LEARNING MODIFIED INHERENT INTELLIGIBILITY

The challenge still remains to know how best to assess intelligibility in situations such as this one. In a recent article Barbara Grimes (1986: 19) comments,

In situations where the second language is not related to the other, it is easy to distinguish between bilingualism and intelligibility from linguistic closeness. However, when the second language is related to the first, it is sometimes difficult to distinguish what understanding is inherent because of linguistic closeness, and what is learned through contact.

Later in the article she concludes,

In a mixed situation, however, comprehension throughout the first dialect or language is not uniform because of increased understanding on the part of those who have learned some of the second dialect or language, so the testing has to be done as for bilingualism, using a wider sample, evaluating levels of bilingual proficiency, and testing for domain limitations. . . . In cases of uncertainty, testing should be done as for bilingualism, in order to be sure of more accurate results.

The methods of testing for bilingualism which Grimes describes are the U.S. Foreign Service Institute interview, testing with Scripture, comprehension of recorded texts, a questionnaire, observation, case study, and translating. Our experience would suggest that the interview, to which Grimes devotes the most space, is ineffective in situations such as this one. What has been called dual-lingualism, a situation where a conversation between two people is conducted in two languages, each consistently speaking his own, is common in the the southern Cordillera. Therefore, conducting effective proficiency interviews is difficult. In fact, it is probably the phenomenon of dual-lingualism which is responsible for poor results from questionnaires, observation, and case study.

Those that remain, then, are testing with Scripture, comprehension of recorded texts, and translating. However, there would seem to be serious problems when attempting to use the translation method. Similarly, testing with Scripture is not the panacea that some surveyors have hoped that it would be. The occasional negative responses that we experienced for our efforts to distribute 1balo1 New Testaments would probably have been more notable if we had tried to test with Scripture. It is also possible that prior exposure to the Scripture would inflate the test results.

Comprehension of recorded texts is left. Grimes (1986: 15) notes that the following guidelines need to be observed:

- 1) A broader sample needs to be tested than when testing for inherent intelligibility.
- 2) Because narrative texts distinguish only level 3 proficiency, more complex texts covering more domains need to be used.

Although these guidelines seem reasonable, she is less helpful concerning how the surveyor ought to interpret the results of the tests. She states, "The only way to distinguish different levels of proficiency with this method is to prepare various texts appropriate to the different levels that need to be distinguished the (sic) purposes of the survey" (1986: 16). Later she adds,

However, it is not likely that in bilingualism we can easily equate a certain percentage with a certain level of bilingual proficiency because of added factors such as domain limitation. It is more likely that by grading the texts according to proficiency level we can be more certain of relating the results to actual bilingual proficiency levels (ibid).

I wonder how this is to be done. Is it possible to produce a "level 4 text" with which to test this stratified sample? How do we know that it distinguishes level 4 proficiency? Do we then look at the individual scores on the test or do we look at the mean and the spread? If we consider the individual scores, what score is adequate to show level 4 proficiency? 100%? If we pay attention to the mean, do we try to set a threshold for the most complex text? In other words, is it possible to say that if there is a mean of 85% on the most difficult of the graded texts that there is adequate proficiency within the group? That would seem to obscure the fact that a certain number may not have adequate proficiency.

Even if these problems are solved, another factor remains when testing where there is learning modified inherent intelligibility. That is, we need to be able to assess unmodified inherent intelligibility. As we have said, even though there is some bilingualism, the possibility remains that there is adequate intelligibility even in cases where there is no contact and learning.

When both intelligibility tests and proficiency tests are administered, as in this survey, an attempt can be made to assess inherent intelligibility. When we look at the means of the intelligibility scores according to proficiency levels in Appendices 12.15.2 and 12.15.3, we notice some interesting facts. If we can assume that those who are considered level 0+ or 1 are functioning almost entirely only on linguistic closeness, we can approximate what the level of inherent intelligibility is. In fact, when the twelve levels 0+ and 1 scores are averaged the result is 84.66 on the first Ibaloi tape and 84.42 on the second. Now it is possible that these scores are also inflated because of passive bilingualism. That is, even though these people were judged to have very little proficiency in Ibaloi, they have learned to understand considerably more. At any rate, this would seem to be an adequate measure of minimal intelligibility.

One additional observation can be made from the intelligibility means according to proficiency levels. Although the tape test scores of the level 0+ and level 1 people averaged out almost the same for both Ibaloi tapes, that is not true for all of the levels. Those with very little proficiency in Ibaloi scored about the same on both tapes and so did those with considerable proficiency, but levels 1+ to 2+ show an interesting difference. Appendices 12.14.5 and 12.14.6 display the general tendencies of the scores with the regression line of the scattergram. On the first Ibaloi tape, even a little bilingual proficiency seems to increase the tape test scores. By level 1+ the scores are already in the nineties. On the second tape, however, the means do not reach the nineties until level 3. From level 3 on, as seen in Appendices 12.14.7 and 12.14.8, the correlations are very close to being the same. Our earlier observation, then, that the results of the two tape tests are different, is borne out. It would appear that the second tape is more sensitive in that it takes a level 3 person to score well on it.

Perhaps, then, there is hope for the development of graded tape tests which measure comprehension where there is learning modified inherent intelligibility.

9.0 SUMMARY

9.1 Use

The Karao people have continued to hold on to their language and culture even though they have been surrounded by Ibalois for at least 150 years. There are no clear indications that they will not continue to do so. The most that one could predict is that Karao will become more like Ibaloi as the years go on.

Karao is used almost exclusively for in-group use. When Karaos speak to one another they do so in Karao. Also, in most cases of intermarriage where the Karao area becomes the home, the Ibaloi spouse quickly learns the Karao language and it becomes the language that is used with the children. The only exception to this pattern of using Karao with Karaos that we have been able to observe is in the Baptist Church where Ibaloi is used if there are any Ibalois present.

Most karaos also learn Ibaloi although there is a large range of ability levels. Most Karaos say that they use Ibaloi when they speak to an Ibaloi person although there are some who insist upon using Karao. The Ibalois always speak Ibaloi in conversation with a Karao.

9.2 Attitudes

The Karaos are proud of their linguistic and cultural identity. A recent move by the Office of Muslim Affairs and Cultural Communities to recognize the Karao people as a cultural community has been looked forward to for some time. The Karao people are unanimous in their desire to see the Karao culture and language preserved.

Generally speaking, there is a good relationship between the Karaos and the Ibalois. There is certainly an absence of hostility between them, to which the fairly high rate of intermarriage attests. However, some Karaos, although not the majority, have an almost indefinable feeling that the Ibalois look down upon them, but the feeling does not seem to seriously affect daily interaction.

The Karaos would like literature in their own language but most say that they would be willing to use books in Ibaloi if there were no Karao alternatives.

This attitude of willingness, however, has not resulted in Ibaloi literature being used. English continues to be the language in which most of the reading is done.

9.3 Proficiency/intelligibility

Everyone understands Ibaloi when it is spoken slowly and simply, due to the linguistic similarity. The data seem to suggest that there is about 84% or less inherent intelligibility of Ibaloi. This, on its own, would seem to us to be inadequate to be able to use the Ibaloi New Testament. This degree of inherent intelligibility has for most been modified by significant contact with the Ibaloi people, although some have learned to understand it far better than they are able to speak it. The most significant factor by far seems to be education. Because all schooling beyond elementary is done in the Ibaloi area there is a real incentive for the high school students to learn the language that most of their classmates speak. However, there are occasional exceptions. Some who have recently completed 4 years of high school have only limited ability in Ibaloi. The explanation seems to be that some of the Karaos choose to keep by themselves even when they get to high school. Therefore they have only limited exposure to the Ibaloi language. Conversely, others who have never gone to high school have good proficiency in Ibaloi. The explanation is that, they have had other significant contact outside of the Karao area. Several of the Karao men have worked in a nearby sawmill and have learned Ibaloi there.

At best, about 55% of the Karao people have enough ability in Ibaloi to be able to use the Ibaloi Scripture. Another 20% definitely do not have sufficient ability. About the remaining 25% it is hard to be definite. Some probably

could function quite well, others could not. Probably all would struggle with the more difficult portions. This, of course, is based upon the lowest criterion. Insisting upon level 4-like proficiency, as many do, changes the picture quite dramatically.

10.0 CONCLUSIONS

We return now to the original question: "Is the Ibaloi New Testament adequate for the spiritual needs of the Karao people?" More specifically, is it understandable and acceptable to them?

Probably at least half of the Karaos cannot adequately understand Ibaloi enough to be able to use the Ibaloi New Testament, although there are many that can. However, at least some of those who could never independently use it do not have the necessary education to be able to use a Karao one either. We would expect that the communication network that is set up within the community would meet their needs. Even now, some of the older people who have recently become Christians depend on some of the better educated to explain to them in Karao what the Ibaloi or English sermon was all about.

There are others, however, perhaps more than one-third of the Karao people, who are fully literate but who do not have the necessary proficiency in Ibaloi to be able to read it effectively for themselves. Is this likely to change? Probably not in the near future. The level of education is already surprisingly high and we doubt whether it will change significantly. And, among those who do leave the Karao area for education or employment, there will always be some who learn Ibaloi only to an intermediate level.

The Ibaloi New Testament is not unacceptable to the Karao people. They profess to be willing to use it. However, "Are they willing to use it?" and, "Will they use it?" are different questions. It is our guess that the Karao people will not use the Ibaloi New Testament without some significant promotional effort. Our guess is based on two observations. First of all, there is no literary tradition in the Ibaloi language. If the language in question was Ilocano or Tagalog, perhaps our surmise would be different. Secondly, the Ibaloi New Testament is not widely used among Ibaloi Christians. It is unlikely that it will become more popular with the Karaos than it is with native-speakers of Ibaloi.

The Karao community is not without access to the gospel. However, there is little doubt that the community would be better reached if it had the Scripture in the Karao language. Also, since the first report was written, we have had opportunity to visit Karao several times. On our most recent trip in November one of the influential Karao men, and a leader in the Baptist Church, expressed to us that there was a deep sense of disappointment with the decision not to proceed with a translation. The people said, according to him, "Well, maybe we can understand some Ibaloi, but we want to read the Bible in our own language."

Does this constitute a translation need? Undoubtedly there are places that are more needy than Karao. However, there are many Karao people who do have a need for the Scripture in a language that they can really understand. And, some of those who could easily use Ibaloi express a deep desire to have a Karao New Testament. If SIL chooses to meet this need, the essential ingredient is a team that, fully aware of the apparent "marginality" of the situation, is willing to make the commitment to working in such a place.

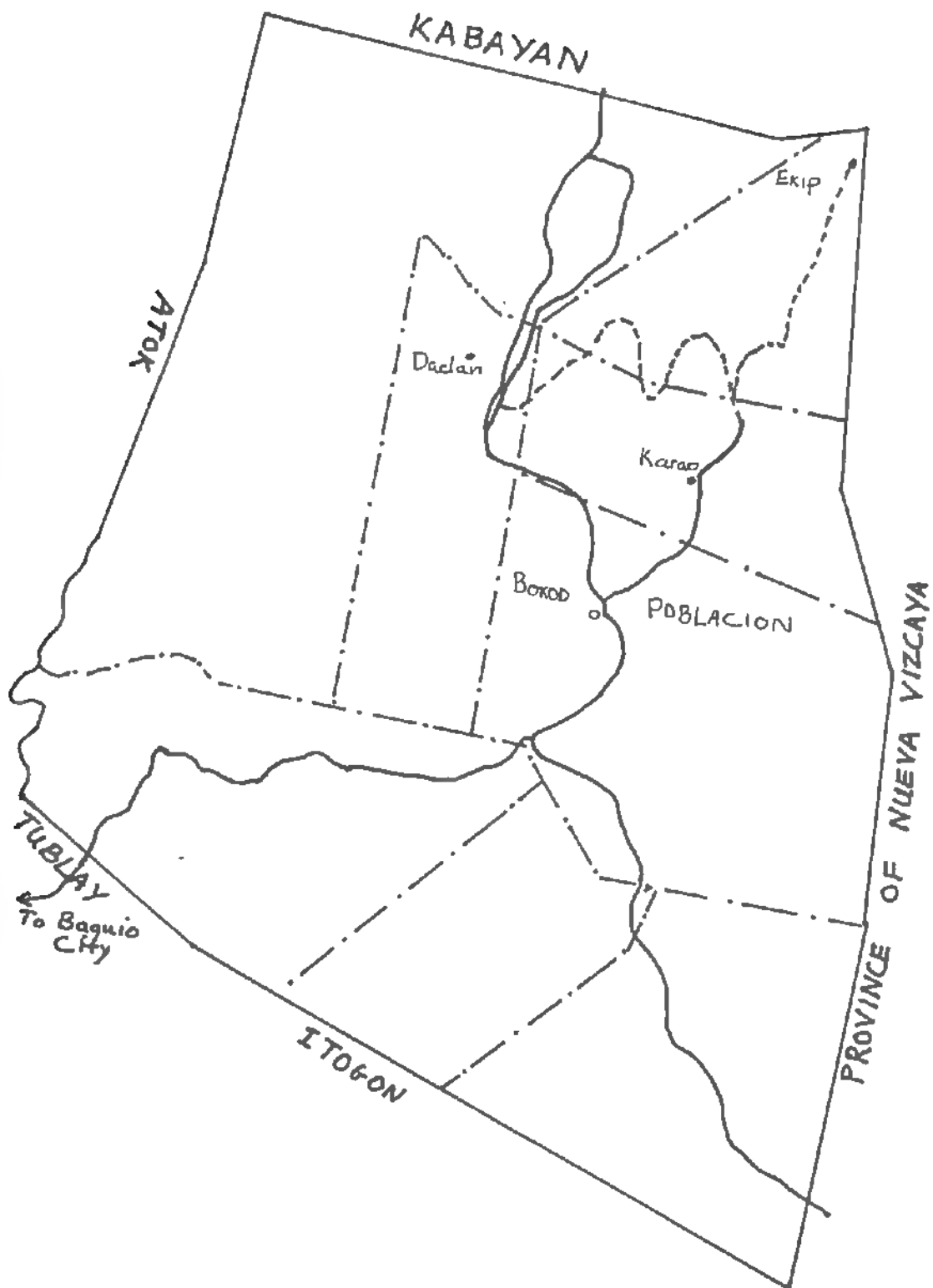
APPENDIX 1.0

MAPS

1.1 Province of Benguet



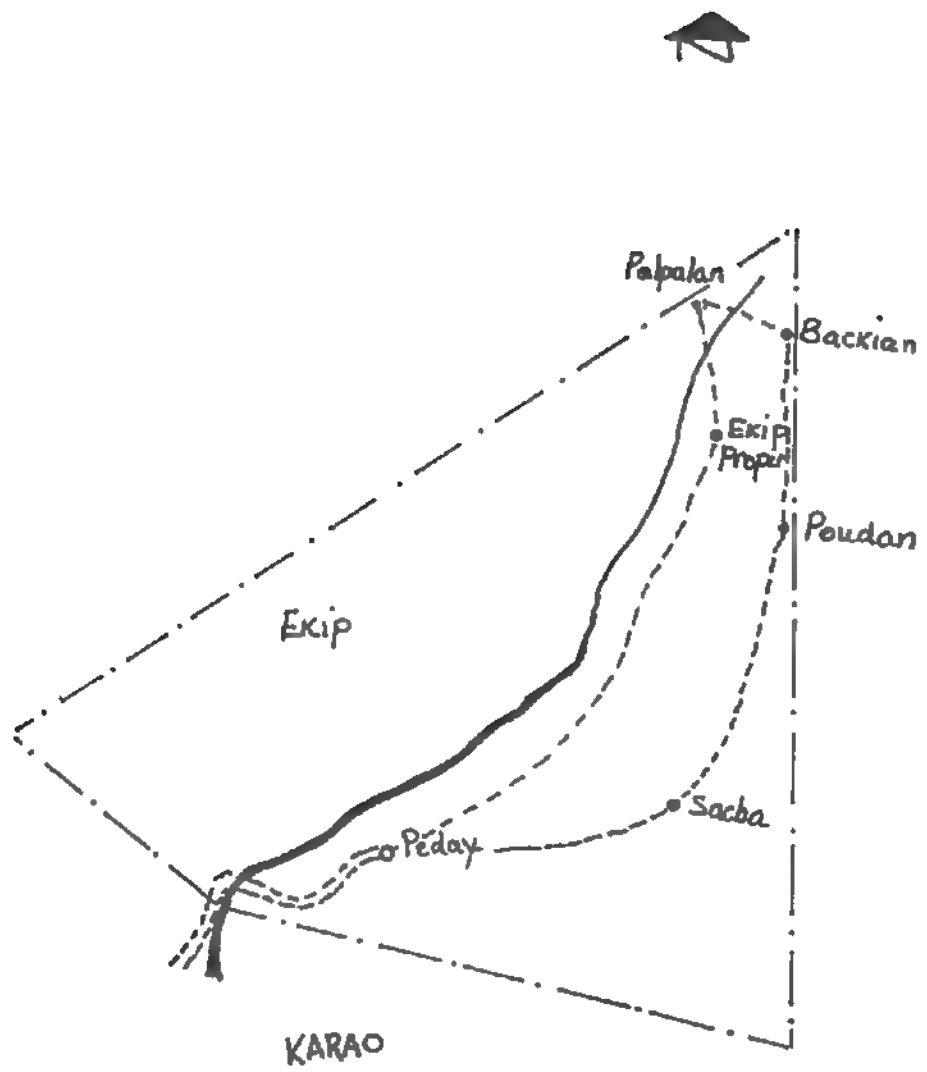
1.2 Bokod Municipality



1.3 Barangay Karao



1.4 Barangay Ekip



APPENDIX 2.0

PHILIPPINE 372 WORD LIST FOR KARAO AND IBALOI

ENGLISH	KARAO	IBALOI	ENGLISH	KARAO	IBALOI
1. abaca	pintok		2. afternoon	qaračrn	maqčrn
3. all	qraiqin	qrain	4. anger	bongrt	bongrt
5. ankle		tikding	6. areca nut	songbat	songbat
7. areca nut	keekemot	wants	8. areca nut	bowa	bowa
9. ashamed	baqing	baqing	10. ashes	črpqol	ngaqap
11. back	brnig	brnig	12. bird	ngaqawrs	ngaqaw
13. banana	balat	balat	14. bark	bədat	kilqas
15. bathe	naqars	qars	16. belly	qarks	qarks
17. betel leaf	dawid	kawid	18. betel chew	bowa	bird
19. big	banay	qrbadrg	20. bird	titit	titit
21. to bite	kalat	kalat	22. bitter	qonpaqit	qonpaqit
23. black	qrtoling	qrtoling	24. blanket	kitap	kitap
25. blind	qikorab	qikorab	26. blood	čala	čala
27. blow	siqpok	siqbok	28. body	qangil	bukdang
29. boil	prisa	prisa	30. to boil	črkčrk	ančrkčrk
31. bone	pozrl	pokrl	32. brain	qoBik	qotrk
33. breakfast		pangan nı qagsapa	34. breast	soso	soso
35. burn	poqol	poqol	36. bury	brka	brka
37. butterfly	tatabaw	boqboqdo	38. buttocks	qogrt	qobrt
39. buy	tongkal	tokal	40. call	taqqway	tawal
41. canoe paddle		biłog	42. canoe paddle		
43. carabao	nowang	nowang	44. charcoal	kusang	qoling
45. cheek	tamil	tamil	46. chest	paxow	pagrw
47. chicken	manok	manok	48. child	ngaqnga	ngaqnga
49. chin	pangal	timid	50. choose	pispis	pispis
51. climb	kalab	kalab	52. cloud	kolpot	kolpot
53. coconut	nıyog	nıyog	54. coconut (ripe)	nıyog	nıyog
55. cold	tıgqin	qıngkrtit	56. comb	bird	sagaysay
57. companion	qarčom	kaqit	58. to cook	doto	doto
59. cooking pot	kančaro	kančiro	60. cotton	kaps	kaps
61. cough	qokqok	qokqox	62. to count	biłang	biłang
63. crocodile	bowaja	bowaja	64. cut (slice)	kakaqok	kabang
65. to cry	nangis	nangis	66. to cut (slice)	bokbok	bokbok
67. day	qakuw	qakrw	68. dead	qitıv	qıtry
69. deaf	qrtoling	qırtoling	70. debt	qoBang	qotang
71. deep	brıuw	drırng	72. deer	makgwas	qolıa
73. defecate	mantaqı	mantaqı	74. delouse	qıčrl	koto
75. difficult	qrdıgat	qrdıgat	76. to dig	bıka	kotkot
77. dirty	qıngıbiqan	qırdagıtan	78. dog	qaso	qaso
79. dream	kokip	kakokip	80. to drink	qınom	qınom
81. dry	qımaxa	qıwagqan	82. to dry	qısaqıpy	saqıpy
83. dull	qırdugıg	qıngırlı	84. dust	tapok	tapok
85. ear	ngıla	ıangıda	86. earth	pıBık	čaga
87. earthquake	sakdong	ıırgıııg	88. east	bosakan	brıdalan
89. eat	kakan	aangan	90. eel	kıwrı	kıwrı
91. egg	qıkdog	qıkdog	92. eggplant	tarong	tarong
93. eight	gwalo	walo	94. elbow	sıxo	sıko
95. excrement	taqı	taqı	96. eye	maBa	mata
97. eyebrow	kırıy	kıčry	98. eyelashes	paspas	paspas

ENGLISH	KARAWI	IBALOI	ENGLISH	KARAWI	IBALOI
99. face	dopa	dopa	100. to fall	maqkas	maqkas
101. far	qaragwi	qarawi	102. fast	paspas	paspas
103. fat	maθrba	matrba	104. fat(n)	tagwa	taba
105. father	qawa	qama	106. to fear	qontaxot	takot
107. feather	čotčot	polčos	108. fence	qalad	qalad
109. fight	bakal	bakal	110. finger	kalomot	kalomot
111. fingernail	koxo	koto	112. fire	qapoy	qapoy
113. fish	paqidng	paqidng	114. five	dima	dima
115. floor	črtqal	črtqal	116. flower	bonga	sabsabong
117. fly(insect)	qatimok	pangat	118. to fly	qontayab	qontayab
119. forehead	timok	timok	120. forget	dingding	dibkan
121. four	qrpāt	qrpāt	122. fragrant	mansingom	qrmansingom
123. frog	tingiy	tingiy	124. fruit	dawts	dawts
125. full	qiyapstl	napstl	126. full(jar)	qiyapno	napno
127. ginger	qaxat	qagat	128. give	qikan	qakan
129. good	saptng	saptng	130. green		qanng
131. hair	bowrk	bowrk	132. hand	dima	takday
133. hard(subst)	keng	qngkrčrl	134. head	toktok	toktok
135. hear	čingri	lidng	136. heart	poso	poso
137. heavy	qonbrlqat	qzmbrylqat	138. heel	soxod	soxod
139. to hide	qmot	qmot	140. hold	qrgčl	prngprng
141. hot	qonprtang	qzmprtang	142. house	balry	balry
143. how many	piya	piya	144. hundred	sandasos	dasos
145. hunger	qopa	ragang	146. hunt	qanop	qanop
147. husband	qimbaly	qaswa	148. husk of rice	čeki	čeki
149. if	nra	nra	150. intestines	qkrs	sosot
151. itch	kaθrl	katsrl	152. to kick	kodtal	tikjad
153. kill	bono	bono	154. knee	powrg	powrg
155. know(person)	qanta	qanta	156. ladle	qiros	sakdong
157. lake			158. laugh	ngiqngi	ngiqngi
159. leaf	bolong	bolong	160. learn	qačal	qačal
161. left(hand)	gwili	qawidi	162. leg	srki	srki
163. lice	koth	koto	164. lice(chicken)	boxow	kawayo
165. to lie	qitrk	nalnal	166. lightning	baklat	bagidat
167. lime	qapol	qapol	168. lip	sobrl	sobrl
169. live(dwelling)	iyambalyjan	manbaly	170. liver	qalkiy	qalkiy
171. loincloth	qagwrl	kobal	172. lonely	kaqzngos	
173. long	qančokiy	qzncokry	174. lose	qabw	qatw
175. lungs	bala	bala	176. man(male)	daxi	daki
177. many	čakrl	čakrl	178. eat	kawrn	kawrn
179. medicine	qagas	qagas	180. monkey	bolringrn	qaki
181. moon	bolan	bolan	182. morning	dadabrl	qagsapa
183. mortar(rice)	hajoqan	hajoqan	184. mosquito	qasangaw	qimok
185. mother	qina	qina	186. mountain	contog	contog
187. mouth	trai	bongot	188. mud	kaloy	pitrk
189. name	ngaran	ngaran	190. narrow	kopitng	qtdipit
191. near	qrsop	qrsop	192. neck	bokdum	bokdum
193. needle	čakom	čakom	194. new	bado	bado
195. night	kaltbigan	kaltbigan	196. nine	siyan	siyan
197. nipa		kalabjaw	198. none	nagwara	qznci
199. noon	qalasdosl	qalasdosl	200. nose	soθrg	qzrng
201. not	nat	qaliwa	202. not	nat	qrg
203. now, already	da	da	204. old(object)	čaqan	čaqan
205. old(person)		qrdakay	206. offspring	qanak	qanak

ENGLISH	KARAO	IBALOI
207. one	siqki	sakry
209. pain	saxit	sakit
211. to pay	bayad	bayad
213. penis	qoBin	oto
215. pestle	krds	daqdo
217. pillow	pongan	pongan
219. to play	qagstl	qamayo
221. to pull	koyod	koyod
223. raft		
225. rainbow	beinong	hongdol
227. rat	qoBot	qotot
229. red	dtpang	qrahalinga
231. return	qoli	qonakad
233. rice	paxy	pagry
235. rice(cooked)	qinddBo	qintpoy
237. ring	singsing	singsing
239. roof	qabrp	qatrp
241. rope	pakod	wanrt
243. rub	qoprs	minain
245. salt	qasin	qasin
247. say	kowan	qikowan
249. to scratch	koqko	kokkot
251. to see	maBa	qonqan
253. seven	piBo	pito
255. shadow	qaličon	qadironq
257. sheath	qabip	qatip
259. short(person)	krspo	qisopok
261. shoulder	pasanan	jabada
263. to sit	tokkong	qontongam
265. skin	brdat	brdat
267. sky	bolan	tabrn
269. to sleep	jqko	maqokip
271. to smell	qangob	qagob
273. smooth	moyas	
275. sole of foot	čapan	čalokap
277. sour	qonpaqit	qonpaqit
279. span	karang	kaqwang
281. to spit	čopda	qontopča
283. to stab	baynsk	baycik
285. star	pasingsing	talaw
287. to stick to	prkit	prkit
289. story	qistoria	qistoria
291. string	dobid	kapot
293. suck	sopsop	sopsop
295. summit	paBoktok	toktox
297. sweat	dingrt	dingit
299. sweet potato	dokto	oakto
301. swim	nangoy	nangoy
303. tear	saya	saya
305. tell	kowan	qikowan
307. termite	diyryk	bokbok
309. thigh	qalrbong	qolpo
311. thirst	qtkow	qmwaw
313. thousand	sandibo	dibo

ENGLISH	KARAO	IBALOI
208. other	qapil	qicom
210. palm	palad	palad
212. peanuts	mani	mani
214. person	toqo	toqo
216. pig	krtrl	botbotog
218. to plant	tantm	molā
220. to pound rice	brjo	bayo
222. to push	tonton	tolcon
224. rain	qoran	qoran
226. raincloud		
228. rattan	qrgmry	qrmty
230. repeat	pidgwa	pincoma
232. rib	tagdang	tagdtng
234. ricehusked	brkas	brkas
236. right	gwanan	kawanan
238. river	kolos	
240. root	damot	damot
242. rotten	qrboyok	qitoytoy
244. to run	brtik	brtik
246. sand	bowid	čarat
248. scar	kabat	kabat
250. sea	baybay	baybay
252. sell	daxo	qidako
254. man	čaqit	čaqit
256. sharp	maritte	matičsm
258. shore	kilig	pangpang
260. short(object)	ktdptng	qntikty
262. sibling	qaxi	qaxi
264. six	qrntm	qintm
266. skinny	qrpiyot	kinowis
268. slave	bagaqtn	bagaqan
270. small(object)	qotiktl	qoqotik
272. smoke	qasok	qasok
274. snake	qolitg	qolitg
276. soup	čigo	čigo
278. space under	doqongan	doqongan
280. spider	kakagwa	kakawa
282. squeeze	pšpšis	pšpšis
284. to stand	qakgwat	qonalikty
286. to steal	kebot	kebot
288. stone	baBo	bato
290. straight	qiyandtrg	naltq
292. strong	maxičsang	makrdsang
294. sugarcane	qonas	qonas
296. swallow	qakmon	tdtn
298. sweet	qonqamis	qonqamis
300. swidden	qoma	qoma
302. tail	qixol	qikol
304. teeth	sangi	sangi
306. ten	sampolo	sampolo
308. thick	masčtl	masčtl
310. thin	čapit	maqingpis
312. thorn	stbit	srbit
314. three	tido	tido

ENGLISH	KARAO	IBALOI	ENGLISH	KARAO	IBALOI
315. throat	bokdow	kalongkong	316. to throw	čttag	qičtpiq
317. throw away	kɛpɪl	qɪqibong	318. thunder	kɪrol	kɪrol
319. tie	qɪkɪt	qɪsɪngɪd	320. today	nɪmən	■ ■ ■ ■
321. toe	kalomot	kalomot	322. tomorrow	mɪgwəqgwa	kabasan
323. tongue	taytay	čila	324. trail	čalan	čalan
325. tree	kɪjow	kɪjɛw	326. trousers	pantalon	kalson
327. turn	posipos	boliqdi	328. turtle	baxoko	palačongay
329. twenty	čɪgwɛnpolo	čowanpolo	330. two	čɪgwa	čowa
331. under	dogong	naydoqong	332. urine	■ ■ ■	■ ■ ■
333. vagina	boθo	tintin	334. vein	qolat	qolat
335. vomit	qoθa	qota	336. to wait	sɛkɪd	sɛkɪd
337. to walk	qaxad	qaxad	338. wall	čingčing	čingčing
339. wash clothes	bɪlqak	mandaba	340. wash hands	bolo	bolo
341. water	čanon	čanon	342. water contain.	baytngbrng	dawas
343. water jar	karamba	dayoqan	344. waterfall	pajaspas	pajaspas
345. ■ ■ ■	qɪdɔngɪy	qɪkɛpsot	346. weave cloth	mɪngngɪgwɛl	qabɛlɛn
347. weave a mat		sagapɛn	348. west	danskən	ditopan
349. wet	ɪyalpɛk	nalbɛng	350. what	nɛngɔ	nganto
351. what..call it	nganiwan	qɛmən	352. when	qɛpɪyan	pigan
353. where	tolaqɪ	towa	354. white	polam	qɛmpotɪ
355. who	sɪya	sɪpə	356. wide	maləqbak	qɛmbanaw
357. widow	balo	qɛbalo	358. wife	qɛmbaliy	qasɛwa
359. wind	caɪɛm	caɪɛm	360. wine	tapɪy	tapɪy
361. wing	payad	payad	362. winnow	jaqɪpɪ	tɛgqap
363. wipe	ponas	ponas	364. woman	oɪqɪ	bɪqɪ
365. ■ ■ ■	kɪjow	kɪjɛw	366. woods(forest)	kakjowan	kadasan
367. word	qɛsɪl	qɛsɪl	368. to work	məngqobda	məngqobda
369. worn	tɛgwiŋg	donat	370. year	tawɛn	tawɛn
371. yellow	čoyam	čoyam	372. yesterday	kaqčɛmən	kaqčɛmən

APPENDIX 3.0

THE PHONEMES OF KARAO AND IBALOI

These charts are provided for comparative purposes only. The Ibaloi chart is taken from *Philippine Minor Languages*, edited by Lawrence Reid, with a few minor changes in positioning based upon the description of the phonemes in some other papers written by Lee Ballard. The Karao chart is drawn from our own study. We do not pretend that it is a definitive treatment of the Karao phonological system--there remain some unanswered questions. For example, we are uneasy about considering /p/, /θ/, and /ɣ/ as phonemes, but the data that we have gathered until now provide no other choice. Also, there is a sequence [gw] in Karao which we are considering a sequence of two phonemes. Its distribution is similar to that of the Ibaloi [bw] (Kabayan dialect) or [gw] (Bokod dialect). Lee Ballard interpreted it as a single phoneme /w/. These reservations notwithstanding, the two charts are accurate enough to serve as a basis for a broad comparison of the phonological systems.

KARAO

CONSONANTS

	Bilabial	Inter- dental	Dental/ Alv/Alvpal	Back Velar	Back velar	Glottal
Stops (v1) (vd)	p b		t d	k g		q
Fricatives (v1)	ɸ	θ	s			
Affricates (v1) (vd)			ʈ ɖ			
Nasals (vd)	m		n	ŋ		
Laterals (vd)			l			
Flaps (vd)			r			
Semi-vowels (vd)	w		ɣ			

VOWELS

	Front	Central	Back
High	i	ɨ	u
Low		a	

IBALOI

CONSONANTS

	Bilabial	Inter- dental	Dental/ Alv/Alvpal	Velar	Back velar	Glottal
Stops (vl) (vd)	p b		t d	k ■	k	q
Fricatives (vl)			s			
Affricates (vl) (vd)			č j			
Nasals (vd)	■		n	ng		
Laterals (vd)			l			
Flaps (vd)			r			
Semi-vowels (vd)	w		v			

VOWELS

	Front	Central	Back
High	i	ɿ	o
Low		a	

APPENDIX 4.0

A COMPARISON OF CERTAIN ASPECTS OF THE GRAMMARS OF KARAO AND IBALOI

Again, no claim is being made for the inerrancy or completeness of the following data. It has been possible to do only a superficial investigation into Karao grammar. This incomplete morphological sketch is presented here so that we might be able to form some kind of semi-objective judgment concerning the similarity or dissimilarity of the two grammatical systems. The Ibaloi grammar has been gathered from several unpublished papers produced by Lee Ballard which are in SIL files, as well as from some investigation of our own. The presentation is from the general orientation of relational grammar. More specifically, I have tried to follow the format used by Evan Antworth in A Grammatical Sketch of Botolan Sambal.

4.1 Nominals

4.1.1 Case-marking particles

KARAO

	Nominative (full) (minimal)		Genitive	Oblique
Non-personal	say	i	na	cha, -d
Personal sg.	si	si	Ø	cha, -d
Personal pl.	si	ires	Ø	cha, -d
Specific	sema	iwa	niwa	chiwa

IBALOI

	Nominative (full) (minimal)		Genitive	Oblique
Non-personal	say	i	ni	shi
Personal sg.	si	si	nen	sonen
Personal pl.	si	ires	ira nen	ira sonen
Specific	sota	sota	nonta	nodta

4.1.2 Personal pronouns

KARAO

	Person	Nominative		Case Genitive	Oblique	
		(full)	(minimal)			
S	1	siqkak	ak	ko, -k	siqkak	"I"
I	1&2	siqkatha	kıya	tayo	siqkatha	"I & You"
N	2	siqkam	ka	no, -n	siqkam	"You"
G	3	siqkatho	ø	to	siqkatho	"He/She"
P	1	siqkawi	kawi	mi, wi	siqkawi	"We"
L	1&2	siqkathayo	kıyacha	tayocha	siqkathayo	"We & You"
U	2	siqkayo	kayo	jo, yo	siqkayo	"You"
R	3	siqkara	ira	cha, ra	siqkara	"They"

Ibaloi

	Person	Nominative		Case Genitive	Oblique	
		(full)	(minimal)			
S	1	siqkak	ak	ko, -k	siqkak	"I"
I	1&2	siqkata	kıta	tayo	siqkata	"I & You"
N	2	siqkam	ka	no, -n	siqkam	"You"
G	3	siqkato	ø	to	siqkato	"He/She"
P	1	siqkami	kami	mi	siqkami	"We"
L	1&2	siqkatajo	kıtajo	tayo	siqkatajo	"We & You"
U	2	siqkayo	kayo, kajo	jo	siqkayo	"You"
R	3	siqkara	ira	sha, ra	siqkara	"They"

4.1.3 Deictic pronouns

KARAO

Nominative (full) (minimal)		Genitive	Oblique	
sejay	iyay	niyay	chiyay	"This" (near speaker)
setan	ithan	nithan	chithan	"That" (near hearer)
seman	iwān	niwan	chiwan	"That" (far from both)
seman	iwān	niwan	chiwan	Specific

IBALOI

Nominative (full) (minimal)		Genitive	Oblique	
sajay	iyay	niyay	shiyay	"This" (near speaker)
satan	itan	nitan	shitan	"That" (near hearer)
saman	iwān	niwan	shiwān	"That" (far from both)
sotan	sotan	nontan	nodtan	Specific

4.1.4 Interrogative pronouns

ENGLISH	KARAO	IBALOI
who	siya	sipa
where	tolaqı	towa
when	qımpıyan	pıgan
what	nıngı	nganto
why	niyana	ngantoy
how many/much	piya	pıga
how	saqno	saqno

4.2 Verbs

This is only a sample of some of the verbal affixes. No attempt has been made to include causatives or passives. Also, for the sake of convenience we will call the aspects by their traditional names; namely: future, past, etc. The many morphophonemic changes that occur have also been ignored.

KARAO

IBALOI

4.2.1 Initial subjects

'Man' Verbs (Intransitive)

INF	man- . . .	man- . . .
FUT	man- . . .	man- . . .
PAST	yan- . . .	nan- . . .
PRES	man-si . . .	eman- . . .
GER	pan- . . .	pan- . . .

'On' Verbs (Intransitive)

INF	on- . . .	on- . . .
FUT	on- . . .	on- . . .
PAST	-ia- . . .	-ia- . . .
PRES	man-si . . .	eman- . . .
GER	i- . . .	i- . . .

'Meng' Verbs (Transitive)

INF	meng- . . .	meng- . . .
FUT	meng- . . .	meng- . . .
PAST	eng- . . .	eng- . . .
PRES	man-si . . .	emeng- . . .
GER	peng- . . .	peng- . . .

'Mengi' Verbs (Transitive)

INF	mengi- . . .	mengi- . . .
FUT	mengi- . . .	mengi- . . .
PAST	engi- . . .	engi- . . .

PRES	man-si . . .	emengi- . . .
GER	pangi- . . .	pangi- . . .

'Meki' Verbs (Transitive)

INF	meki- . . .	meki- . . .
FUT	meki- . . .	meki- . . .
PAST	eki- . . .	eki- . . .
PRES	emeki- . . .	emeki- . . .
GER	paki- . . .	paki- . . .

4.2.2 Initial objects

-en Verbs

INF	. . . -en	. . . -en
FUT	. . . -en	. . . -en
PAST	-iy- . . .	-in- . . .
PRES	. . . -a	. . . -a
GER	pen- . . .	i- . . .

'I-' Verbs

INF	i- . . .	i- . . .
FUT	i- . . .	i- . . .
PAST	in- . . .	in- . . .
PRES	i- . . .	i- . . .
GER	pangi- . . .	pangi- . . .

-an' Verbs

INF	. . . -an	. . . -an
FUT	. . . -an	. . . -an
PAST	-in- . . . -an	-in- . . . -an
PRES	. . . -i	. . . -i
GER	i- . . .	i- . . .

4.2.3 Initial locative

	'-an' Verbs	
(As Above)		(As Above)

4.2.4 Initial instrumental

	'I-' Verbs	
(As above under Initial object)		(As above under Initial object)

4.2.5 Initial benefactive

	'I ~ an' Verbs	
INF	i- . . . -an	i- . . . -an
FUT	i- . . . -an	i- . . . -an
PAST	in- . . . -an	in- . . . -an
PRES	i- . . . -i	i- . . . -i
GER	i- . . . -an	i- . . . -an

APPENDIX 5.0

KARAO SOCIOLINGUISTIC QUESTIONNAIRE

Survey No. _____

Date April _____, 1986

Surveyor _____

Supervisor _____

Survey Location _____

1. Name _____

2. Age _____ 3. Sex _____ 4. Civil Status _____

5. Residence _____ 6. For how long? _____

7. Residence at birth _____

8. Maiden name _____ 9. Name of spouse _____

10. Where were your spouse and parents born?
Use: [K]Kara; [B]Bokod municipality; [O]Other

a. Spouse [] _____

b. Father [] _____

c. Mother [] _____

11. What grade did you complete _____

FOR QUESTIONS 12 AND 13 USE THE FOLLOWING CODES:

[1]Elementary student	[5]Unemployed	[9]Nurse
[2]High school student	[6]Housewife	[10]Vendor/Shopkeeper
[3]College student	[7]Teacher	[11]Lawyer
[4]Left school	[8]farmer	[12]Fisherman
		[13]Other

12. Where are your children living and what are their occupations?

	1	2	3	4	5	6	7	8	9	10	11	12
Location												
Occupation												

13. What is your occupation? [] _____

14. What language do you use in your job? _____

15. Using the following scale, what languages do you know?

No Ability		Can speak a little		Routine subjects		Can say most things		Very Good		Like a native speaker	
0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	

	Language	Proficiency	Age learned	Read
First language				
Second best language				
Third best language				

16. What is your father's first language? _____

17. What is your mother's first language? _____

18. What is your spouse's first language? _____

19. What language do you use when you speak to a Karao:
Barangay

Spouse	Parents	Children	Teacher	Captain	Friends

20. What if they know Ibaloi and Karao?

Spouse	Parents	Children	Teacher	Captain	Friends

21. What if they only know Ibaloi?

Vendor	Jeepney driver	Stranger	Teacher	Mayor	Friends

22. How often do you leave the Karao area?

[] Daily [] Weekly [] Monthly [] Less than once a month

For what purpose? _____

23. Have you ever lived outside of the Karao area for longer than 3 months?

Where? _____ For what purpose? _____

24. What is your religion? _____

25. What language is used in church for:

Singing _____ Preaching _____ Praying _____

26. What language would you like to have used in the church? _____

27. What language do you use to:

Pray in _____ Think in _____ Dream in _____

28. What language is the easiest to use to express your deepest feelings?

_____ Why _____

29. What language do you like speaking best? _____

Why? _____

30. What language is it best for children to learn first? _____

Why? _____

31. Is it good for Karao people to learn Ibaloi? _____

Why? _____

32. Does it bother you when you have to speak Ibaloi? _____

Why? _____

33. Do you think most Karao people enjoy being with Ibaloi people? _____

Why? _____

34. Have you ever felt looked down on by Ibaloi people? _____

35. In 20 years do you think Karao will still be spoken? _____

36. In what language do you do most of your reading?_____

37. Do you wish that you had books in the Karao language?_____

Why?_____

38. If there were no Karao books would you be satisfied with reading Ibaloi books?_____

Why_____

ADDITIONAL COMMENTS OF INTEREST MADE BY THE INTERVIEWEE

APPENDIX 6.0

QUESTION BANK

What is your name?
Where did you come from?
How old are you?
Where do you live?
How long have you lived in _____?
Have you lived any other place other than _____?
What kind of house do you live in? Can you describe it for me?
How many children do you have?
What are the ages of your children?
Where do they live?
What grade are you in in school?
What subjects do you take in school? Which is your favorite?
What is your job?
Tell me what you do in the course of a normal day?
Tell me what you did today before you came here?
What do you plan to do tomorrow?
Tell me how you grow rice. What are the steps?
What is your favorite food?
What vegetables do you grow here in Karao?
What do you think of the past election campaign?
Were you pleased with the outcome of the last election?
Was it peaceful here in this municipality during the voting?
What do you think about the present administration here in the Philippines?
What places have you visited outside of Bokod?
What do you like most about living in Karao?
What are the things that you don't like about living here?
Were you here during the earthquake of a year ago?
Tell me where you were during the earthquake and what happened to you.
Do you know anyone who lives overseas? Who? What do they think of it?
Have you ever been to Manila? What did you think of it?
Do you think that it is important to get a good education? Why?
If you had a choice between living here or in Baguio which would you choose?
Why?
If you were given a gift of 100,000 pesos what would you do with it?
If you could live anywhere in the world where would you choose to live and why?
What do you think would have happened if Marcos had not left?
What have you found to be the most difficult about married life?
Why have you chosen to remain single?
Do you plan to marry in the future?
What has been the happiest occasion in your life?
What has been the saddest occasion in your life?
Where do you think the Karao people originally came from?
If you could change anything that you've done in your life what would it be?
Why?
Tell me what you would do if you saw the child of a neighbour take something from the house of another neighbour.
Would you be in favour of discontinuing the Karao? Why or why not?
If you knew for certain that the world was going to end tomorrow, what would you do today?

If you were elected as the Barangay Captain of Karao, what changes would you make?

Would you be in favour of changing the rice fields to vegetable fields?

How do you feel about the burning of the hillsides?

Do you remember when the road was extended to Karao? What changes happened to Karao?

Do you think that the Karao language will eventually be lost because of the dominance of Ibaloi?

Why do you think there are few fish being caught in Ambuklao?

APPENDIX 7.0

INTERVIEW SCORE SHEET

NAME _____ INTERVIEWER _____

COMMENTS:

SCORE:

WEIGHTING SCORE

Proficiency level	A	B	C	D	E	F
Accent						
Grammar						
Vocabulary						
Fluency						
Comprehension						
TOTAL						

PROFICIENCY DESCRIPTIONS FOR WEIGHTING PROCEDURE

ACCENT

- A. Pronunciation frequently unintelligible.
- B. Frequent gross errors and a very heavy accent make understanding difficult, requires frequent repetition.
- C. Foreign accent requires concentrated listening; mispronunciations lead to occasional misunderstanding; apparent errors in grammar or vocabulary.
- D. Marked foreign accent and occasional mispronunciations that do not interfere with understanding.
- E. No conspicuous mispronunciations, but would not be taken for a native speaker.
- F. Native pronunciation, with no trace of foreign accent.

GRAMMAR

- A. Grammar almost entirely inaccurate except in stock phrases.
- B. Constant errors showing control of very few major patterns and frequently preventing communication.
- C. Frequent errors showing some uncontrolled major patterns and causing occasional irritation and misunderstanding.
- D. Occasional errors showing imperfect control of some patterns but no weakness that causes misunderstanding.
- E. Few errors, with no pattern of failure.
- F. No more than two errors during the interview.

VOCABULARY

- A. Vocabulary inadequate for even the simplest conversation.
- B. Vocabulary limited to basic personal and survival areas (time, food, transportation, family, etc.).
- C. Choice of words sometimes inaccurate; limitations of vocabulary prevent discussion of some common professional and social topics.
- D. Professional vocabulary adequate to discuss special interests; general vocabulary permits discussion of any non-technical subject with some circumspection.
- E. Professional vocabulary broad and precise; general vocabulary adequate to cope with complex practical problems and varied social situations.
- F. Vocabulary apparently as accurate and extensive as that of an educated native speaker.

FLUENCY

- A. Speech is so halting and fragmentary that conversation is virtually impossible.
- B. Speech is very slow and uneven except for short or routine sentences.
- C. Speech is frequently hesitant and jerky; sentences may be left uncompleted.
- D. Speech is occasionally hesitant, with some unevenness caused by rephrasing and groping for words.
- E. Speech is effortless and smooth, but perceptibly non-native in speed and evenness.
- F. Speech on all professional and general topics as effortless and smooth as a native speaker's.

COMPREHENSION

- A. Understands too little for the simplest type of conversation.
- B. Understands only slow, very simple speech on common social and touristic topics; requires constant repetition.
- C. Understands careful, somewhat simplified speech, with considerable repetition and rephrasing.
- D. Understands normal educated speech quite well, but requires occasional repetition or rephrasing.
- E. Understands everything in normal educated conversation except for very colloquial or low-frequency items, or exceptionally rapid or blurred speech.
- F. Understands everything in both formal and colloquial speech to be expected of an educated native speaker.

APPENDIX B.0

SELF-TEST QUESTIONNAIRE

B.1 Karao

- S-0+ Mebedin a man-asel ka na otik a Ibaloi?
- S-1 (A) Mebedin a igwanggwang moy pesing a ongkowan cha BSAT?
(B) Mebedin a egwathan mo et konen moy koston edafo-an mo tan engimbaley ka?
- S-2 (A) Mebedin a konen moy koston itsura na obdam?
(B) Mebedin a konen moy itsura na pamiljam, baley jo tan itsura na timpo niman
(C) Mebedin a gwarey dagbo-an mo et pantothodagan i suwilcho tan oras tan echom a obda?
(D) Gwagwa-cha ngaten na-igwathan chaka na Ibaloi?
- S-3 (A) No iki-ngelan moy tabtabal na Ibaloi mebedin a egwathan mo et konen moy chang kona?
(B) Mebedin a mekisungbothan ked Ibaloi?
(C) Mebedin a konen moy Ibaloi a i-magan toka na baley et onongan toy kigwan mo?
(D) No man-asel ka na Ibaloi na eki-to-an tep egao la anten mengi-sel na Ibaloi?
- S-4 (A) No Ibaloi i tabalan, mebedin a konen mo na olay i piyan mon konen?
(B) Kaba-dan mon emagen cha Ibaloi a inges toy na-impangemag mod Karao
(C) Mebedin a manibaloï ka ankena kebonget ka?
(D) Na iyankawali ka nem singka-chom no man-asel ka na Ibaloi?
- S-5 (A) Chakel i antam a esel na Ibaloi a inges toy karakel na antam a esel na Karao?
(B) No singka-chom inaanam-ay ngaten mannenem na Ibaloi isay i karao?
(C) Mebedin a man-asel ka na Ibaloi a singen Ibaloi ka?
(D) Na-iyanta-an na to-o i not Ibaloi ka no man-asel ka na Ibaloi?

B.2 English translation

S-0+ Can you speak Ibaloi just a little bit?

- S-1 (A) Could you explain the way from here to BSAT?
(B) Can you understand and respond properly to questions about where you are from and if you are married?
- S-2 (A) Can you describe in detail your present work?
(B) Can you describe your family, your house, and the weather today?
(C) Can you hire someone to work for you and arrange such details as salary, hours and specific duties?
(D) Do Ibaloi speakers understand you nearly all of the time?
- S-3 (A) Can you listen to a conversation among Ibaloi speakers and be able to summarize what you have heard?
(B) Can you debate well in Ibaloi?
(C) Can you arrange with Ibaloi speakers to build a new house, explaining just how you want it built?
(D) Are you sometimes unable to finish a sentence because you don't know how to say something in Ibaloi?
- S-4 (A) In discussions with Ibaloi speakers, can you always say exactly what you want to say?
(B) Can you accomplish whatever task in Ibaloi, just as if it were in Karao?
(C) Can you speak Ibaloi well, even when you're angry?
(D) Do you sometimes make mistakes when you speak Ibaloi?
- S-5 (A) Can you use as many words in Ibaloi as in Karao?
(B) Sometimes is it easier to think in Ibaloi than in Karao?
(C) Do you speak Ibaloi as well as an Ibaloi speaker?
(D) Do people know that you are not an Ibaloi by the way that you speak Ibaloi?

APPENDIX 9.0

TAPE TESTS

9.1 Tape test one - Karao

Nonta bayag chiwa aragwin dugad, gwarey arin iyanngaran na Oyong. Sejay a ari, gwarey anak ton marikit a si Aniway. Q1 Siyay saxa-anak Aniway? Chakel i na engare-arem Aniway nem say sinmekan to, si Nogas a sa-kin ebitheg nem marunong. Q2 Sa-noy ingkatho-on Nogas?

Sa-kin akow, imparang Nogas cha Oyong iy no mebedin koma imbalejen tos Aniway. Nem, nat piyapiyan Oyong tep ebitheg si Nogas. Q3 Niyana nat piyan Oyong a imbalejen Nogas i anak to? Si Nogas pinidipidit tos Oyong et idi on-aptos Oyong kigwan to i, "No piyan mon imbalejen i anak ko, pangemag ka ngarod na chaged ma kawa na baybay. Q4 Nganman a impa-mag Oyong cha Nogas asan toxa itolok si Aniway?

Iya-ngos si Nogas et kimowan cha kilig na baybay et iyan dowado. Q5 Hengoy impasing Nogas? Et idi ekay, biglen gwarey iyamparang a engiming a a-ama et kigwan to i, "Niyana ka-engos ka?" Inistorya wen Nogas i kagol.

Idi mekcheng a istorya-en toy problemato, kigwan niwa a-ama i "Cha-cha-an taxa no ikarim i imbitaren mo-ak cha kasal mo." "Owen", kigwan Nogas. Q6 Hengoy inkarin Nogas chiwa a-ama? Kimowan maled ma baliy iren Aniway et iyowen toy kigwan niwa ari. Insagana ren emin i ma-osal cha kasal et idi egsapa, gwarey chagen mita iren ma to-od ma kawa na baybay. Q7 Hengoy mita iren aa to-od kawa na baybay? Chiwan i iyangkasalan cha et maradsak iren pasiya. Q8 Toy iyangkasalan cha i? Nem si Nogas dininding toy kari thod ma a-ama. Q9 Ngoy impasing Nogas chiwa kari thod a-ama? Idi on-oli ired ma sigod a baliy cha, imoran tan chimaken na mapkes et a-anod ira. Q10 Hengoy epasamak cha si-kara nonta isoran tan chieaken na mapkes?

9.1.1 English translation

A long time ago in a distant land, there lived a king by the name of Oyong. This king had a beautiful daughter named Aniway. Q1 Whose child is Aniway? Many tried to court her, but her heart belonged to Nogas, a poor but kind-hearted man. Q2 What was Nogas' life like?

One day, Nogas asked Oyong if he could have the hand of Aniway in marriage. But, because Nogas was a poor man, Oyong refused. Q3 Why did Oyong object to Nogas' proposal? However, Nogas was persistent so Oyong decided to put him to a test. He said, "I'll let you marry my daughter if you can create an island in the middle of the sea." Q4 What was the test that Oyong put Nogas to?

Nogas was desperate so he went to the seashore and prayed. Q5 What did Nogas do? After a while there appeared a bearded old man who asked, "Why are you lonely?" Nogas told the reason why.

After hearing his problem, the old man said, "I will help you if you will invite me to your wedding." "Yes," agreed Nogas. Q6 What was Nogas' promise to the old man? He then went to the home of Aniway and accepted the challenge of the king. The wedding preparations began and early the next morning the people saw an island in the middle of the sea. Q7 What did the people see in the middle of the sea? It was there that the wedding ceremony took place and they were very happy. Q8 Where did the wedding take place? But Nogas forgot his promise to the old man. Q9 What happened to Nogas' promise to the old man? When the couple were on the way to the mainland a storm came and a huge wave swept them into the sea. Q10 What happened to the couple during the storm?

9.2 Tape test two - Ibaloi with Karao questions

Shi aragwi tan atalnen dogad, gwaray progresso tan amambaknang ja pamilja ja sakey i anak sha nanngaran ni Romeo. Si Antonio, ja tatang nen Romeo ket sakey ja inhinyiro shi privadon companja. Q1 Hengoy obden Antonio? Si Alicia, ja aseguen Antonio ket sakey ngon mengekas shiman met la-eng ja companja. Shaka bigbiga tan i-etek irajay ja pamilja nem say eshom ja toto-o ket ma-apal karkaros Manuel, ja ka-aroba tan ka-obda-an nen Antonio. Q2 Siyay ka-apal cha Antonio?

Ina-akew malaksid ni Domingo tan bakasjon, kanayon ja toka seskera tan idogan si aseguwa to kada meksheng i opisina. Shaka al-a ni shownen oras i shaka i-ahad manipod shi obda-an inkatod baley sha. Q3 Sa-noy kabejag na nainsothok ched baliy cha? Sakey dabi ni biyarnes, nonta on-ahad na ira, manpigsan-manpigsay oran tan mapkes i shagem nontan ja bolan ni Augusto. Q4 Hengoy itsura na timpo nontan a dagwi na biyarnes? Jet idi ek ekay, biglen ebanggay kotse ra, ni abadeg ja dogan jet ina-kas irad shepdas. Q5 Hengoy epasamak cha si-kara nonta inpanbiyaki ra? In-abot sha irad ospital nem etey met la-eng ira nonta pagmotok cha.

Si Romeo tinagibi ni sakey ja stricto nem masmek ja Auntie to. Q6 Siyay ema-deg Romeo? Nonta kanga-ngato pay la-eng ket toka salosalodsora son Auntie to i impatiy nen ama tan si ina to. Karkaro ni gwaray inkidingan ton notnot ni toto-o ja aligwen aksidente nem eplano. Q7 Hiyana imbagen Roseoy kagal no ingkathey iren ama tan ineto? Naycortes Manuel ja ka-onap-apal son Antonio ja si-kato konoy emono ni ama tan ina nen Romeo tep si-katoy maysigon shan mengda ni powesto nen Antonio. Gapo ta kolang i evidencianaybolos. Q8 Hiyana iyaybolos si Manuel? Gapo ta piyan ton doktalan i epasamak tan ka-agpayso-an intoloy ton kinsheng i kina-abokaro to. Q9 Hiyana iwan abokaros Romeo? Nem angken ngantoy pahat nen Romeo nan phi-ohit ni kapodpodno-an aksidentiy met la-eng i bimoday shi investigasyon ja aligwen plano.

9.2.1 English translation

In a distant land lived a prosperous family with one child, named Romeo. Romeo's father, Antonio, was an engineer for a mining company. Q1 What was Antonio's occupation? Alicia, Antonio's wife, was a physician for the same company. They were the talk of the town but some were jealous of them, especially Manuel, a neighbour and co-worker. Q2 Who was jealous of Antonio?

Everyday, except weekends and holidays, Antonio would pick up Alicia after office hours. It usually took them about two hours to get home. Q3 How long does it usually take them to get home after work? One Friday evening on their way home, it began to rain hard and the wind began to blow. Q4 What was the weather like on that Friday evening? Suddenly, a truck hit the car and it went over the cliff. Q5 What happened to them on their way home? They were rushed to the nearest hospital but were dead upon arrival.

Romeo was then taken and raised by a strict but loving Aunt. Q6 Who raised Romeo? During his childhood he often questioned his Aunt about the death of his parents because he had heard rumours that their death was not an accident. Why did Romeo ask questions about the death of his parents? The court had tried Manuel for their murder because he was the next ranking engineer and had been promoted as chief engineer. But, due to lack of evidence, he was acquitted. Q8 Why had Manuel been acquitted?

Romeo still wanted justice so he studied Law. Q9 Why did Romeo study Law? Romeo investigated the case but he found out that the death of his parents was an accident.

9.3 Tape test three - Ibaloi with Ibaloi questions

Piyan kon man-istorya ni kaka-asi tan adaringit ja apalabas shi biyag ni kajem kon nanngaran ni Maria.

Nonto sampolo tan showen taw-en to pay la-eng, pasaray kanajon i bakal nen ama tan ina to. Q1 Ngantoy itsora ni biyag ni pamilja nen Maria? No maminsan eda-os i bakal sha ja ka-ontakotakot tan ka-onkelkelew si Maria baka man binono ira. Q2 Ngantoy tinekatan nen Maria nonta inteneng ton emansongbat si tatang to tan si nanang to?

Gwaray sakey timpo, ja mimutok i ama to ni kalabi-an. Toka kelkeljawes kadgwa to hi maeki-as-apol tan mekikidaw soni eshom ja daki. Q3 Apay nga kineljaw nen tatang Maria si nanang to? Ka-onkikiding ngos Mariad sabin ni kowadto jet pinshas ton peshalsheng ira. Kowan tatang to i sedpaken tos kadgwa to i kimeljaw si Maria ja kowanto i ayshi basol tan aramid ton satan. Q4 Ngantoy inpanongbat ni nanang nen Maria nodta epanikowan nen asegwa to? Kowan to pay it mansepata tan mansangba ka ikowan toy kapodpodno-an. Q5 Nganton na tinmalokan ton pesing to?

Toka kekkekshowa i patiyen nen tatang to, nem atangkem ngon agmamati sonen Maria, tep inkidengan to ni sakey ja ka-inoman to i aramid nen kadgwa to kono. Q6 Ngantoy egto patiyen si asegwa to? Talaken pinati ton shiliy notnot jet emangedangedawngaw shi baley sha. Inkidengan to tan inon-an tos tatang ton apandoktey nay-inan tan naytalo-an ni nen katadman. Kimel-ew tan atakot si Maria tep amta to i bono-en shes nanang to. Q7 Apay nga etakot si Maria? Amanaktakot tan nga-ew i ningningan nen tantang to sonen nanang to jet imawas shi kowadto to. Bintik to jet inebang tos tatang to ja kowan to i si nanang to ket ayshi aramid ton satan tep toka taktaksholes nanang to ni olay. Q8 Ngantoy impasing nen Maria ja engibaliw sonen nanang to? Ingwaling shes Maria jet inpa-ket nen ama to. Q9 Ngantoy epasamak sonen Maria?

Bintik ton imawas ja ondaw mengodop ni Police tep say isalakan sha ges nanang to. Q10 Apay nga dinmaw shi Police? Ashakel i salodsod ni Police son si-kato, ja pigan i nanshogi-an ni bakal nen tantanag tan nanang to, tan ngantoy itsora ni ta-ed i inegni-an to. Binmonget nodta salodsod tep kowanto it mebedin ja metey si nanang to ni kompromin oras nontan ja timpo. Piyan to keno-an sha. Q11 Apay nga binmonget si Maria shi kawad-an ni Police?

Dimaw ma sota Police shi baley sha. Dinoktan toy dekeb jet kowanto i, "Ali ta ta-ed," jet idi eman in-akan nen tatang nen Maria sota ta-ed. Q12 Ngantoy impasing nen tatang to nonta minnotok sota Police? Jet sota Police piyan ton amta-en no sipay inanbasol. Ireka nan pinabasol sota san-asegwa. Pa-jangona inenawa ira nonta Police, onsekshal iren mansinodsoran.

Inamtik sota Police nonta na-kal i bonget nen tatang to, nem enshi pay laeng i singa koston talned ma baley. Q13 Ngantoy resulta ne inpanbisita nonta Police? Dinmaw si nanang tod ma kowadto jet indo ton emin i baro to tan emin ja kasepolan to, asan toka ikowan sonen Maria in on-onod. Kowanto i egto piyan ja mekitakshol soni dakin ayshiy piyal to son si-kato. Q14 Apay nga kowanto in sentik? Jet si Maria intenengan toy epan-ikowan nen tatang to i on-oli ira nota inmawes irad ma baley. Q15 Ngantoy inteneng nen Maria nonta inmawes shiwa baley?

9.3.1 English translation

Let me tell you about a sad experience that happened to a friend of mine named Maria. When she was 12 years old, her parents argued all the time. Q1 What was Maria's family life like? Sometimes the argument would become so

heated that she was afraid that they would hurt one another. Q2 What was Maria afraid of when she heard her parents arguing?

On one occasion her father returned home late. He started to shout at her mother and to accuse her of being with another man. Q3 Why did Maria's father shout at her mother? Maria was in the bedroom listening at the door and could hear them shouting. Her father threatened to hit Maria's mother but she yelled that she was innocent and had never betrayed him. Q4 How did Maria's mother respond to the charges that her husband was making? She even said that she would take an oath that she was telling the truth. Q5 What was Maria's mother willing to do?

Maria was hoping that this would satisfy her father but he refused to believe his wife because one of his friends had told him what she had done. Q6 Why did he refuse to believe his wife? He thought he knew the truth. Then Maria heard her father open the drawer where the knives are kept. She was frightened when she heard the sound because she was afraid that her mother was going to be killed. Q7 Why was Maria frightened? She ran out of the room and saw her father looking menacingly at her mother. Maria ran to him and said that she knew that her mother was innocent because she would have known if her mother had been with another man. Q8 How did Maria try to defend her mother? He just threw her roughly out of the way and told her to be quiet. Q9 What happened to Maria?

Then she ran out of the house to the Police Station and asked if they would come and save her mother. Q10 Why did Maria go to the Police? They asked her many questions, like when did the argument start, and what kind of knife did her father have. She became angry at the questions because she thought that her mother could be killed at any moment. She wanted them to hurry. Q11 Why did Maria get angry?

Finally the policeman proceeded to their house. He broke open the door and said, "Give me that knife." After a few moments he surrendered the knife. Q12 What did her father do when the policeman arrived? Then the policeman wanted to know who was at fault. Both the husband and wife said that the other was at fault. And, although the policeman talked to them for some time, they refused to be reconciled.

The policeman left after her father had calmed down but there was still no peace in the house. Q13 What was the result of the policeman's visit? Her mother went to the bedroom and packed her clothes in a bag and told Maria to do the same. She said that she would never stay with a man who didn't trust her. Q14 Why was she leaving? Then they left the house with the voice of her father ringing in Maria's ears begging them to return. Q15 What did Maria hear as she left the house?

APPENDIX 10.0

SURVEY DATA

#	SEX	AGE	EDUCATION	SELF- SCORE	SELF- TEST	INTER- VIEW 1	INTER- VIEW 2	INTER- VIEW 3	AVERAGE PROFIC.	TAPE ONE	TAPE TWO	TAPE THREE	AVERAGE COMPREHEN.
1	F	50	6	3+	3+	3	3	2+	3	89	72	77	E
2	F	43	1HS	3+	3+	3+	3+	3+	3+	100	100	93	E+
3	M	49	COLL	4	3+	4	4	4+	4	100	100	97	F
4	F	26	COLL	3+	3	4	4+	4+	4+	100	100	97	E+
5	F	43	6	4	3+	3+	3+	3+	3+	100	100	100	E
7	F	20	3COLL	3+	3+	3	3	3+	3	100	94	100	E+
8	F	45	COLL	3+	3+	4+	3+	4	4	100	94	97	E+
9	F	55	2	1	2+	0+	1	1	1	94	89	53	B
11	F	55	0	2+	3	1+	1+	1+	1+	83	100	77	C
12	F	45	4	2	1+	1	1	1	1	83	67	73	E
13	M	21	3COLL	3+	3+	4	3+	4	4	100	94	100	E+
14	M	32	COLL	3+	3+	4	3+	4	4	100	100	100	E+
15	M	59	COLL	4	4+	4+	4+	4+	4+	100	100	100	F
16	F	59	6	3+	4+	3	3	2+	3	100	100	100	E
17	M	13	1HS	2+	3	3+	3	3	3	100	100	90	E
18	M	24	1COLL	3+	4	3	2+	2	2+	89	100	93	C
19	F	18	2COLL	4	3+	3+	2+	3	3	100	100	93	D+
21	M	32	2COLL	4	3+	4	3+	3+	3+	100	100	83	E+
22	F	26	COLL	4	3+	3+	3+	3+	3+	100	100	93	E
23	M	50	6	2+	4+	3	3+	3+	3+	89	89	90	D+
24	M	16	HS	3+	3+	3+	3	3+	3+	100	89	83	E
25	F	43	1HS	3+	3+	3+	3	3	3	100	89	93	E
26	M	30	COLL	4	3+	4	4	4	4	100	94	97	E+
28	M	23	3COLL	3	1+	4	3	3+	3+	100	100	100	E

#	SEX	AGE	EDUCATION	SELF- SCORE	SELF- TEST	INTER- VIEW 1	INTER- VIEW 2	INTER- VIEW 3	AVERAGE PROFIC.	TAPE ONE	TAPE TWO	TAPE THREE	AVERAGE COMPREHEN.
29	F	19	1COLL	3	3+	3	3+	4	3+	100	100	93	D+
31	F	41	COLL	3+	3+	4	4	4	4	100	100	93	E+
32	M	22	2HS	3+	3+	2+	2+	3	2+	100	94	93	D
33	M	28	3HS	3	3+	3	3	3	3	89	94	87	D+
36	M	31	3COLL	3	3+	3+	3	3+	3+	89	94	93	E
*38	M	25	1COLL	3	3+	1+	2	1+	1+	100	74	93	C
39	M	35	5	3	3+	3	2+	2+	2+	100	100	83	D+
40	M	48	2	3	3+	2	1	1+	1+	95	83	57	C
41	F	19	2COLL	3	2+	2+	2	2	2	100	100	97	D
42	F	28	COLL	3+	3+	3+	3+	4	3+	100	74	97	E
43	M	60	2	2	3+	2	2	1+	2	100	78	77	D+
44	M	17	6	3	2	1	1	1+	1	100	61	70	D+
46	M	35	6	2+	2+	2	2+	2+	2+	100	94	63	D
*47	M	17	6	2+	3+	1	1+	1+	1+	100	94	90	D
*48	F	19	1COLL	3	3	1	1	1	1	100	89	83	C
49	F	27	3HS	3	2+	3+	3	3+	3+	100	94	93	D+
*50	M	15	1HS	3	2+	1	0+	1	1	95	67	73	C
51	F	16	6	2+	3+	0+	1	1	1	100	83	97	C
52	F	13	4	2	3	0+	0+	0+	0+	100	67	83	B
53	F	14	6	1+	0+	0+	1	1	1	100	89	80	C
54	M	65	6	3	3+	2	1	1+	1+	100	100	93	D
55	F	23	4	1	0+	0+	1	1+	1	100	100	90	C
56	M	61	1	2	2+	3	3	2+	3	90	61	73	D
57	M	24	4	2+	3+	2	1+	2+	2	95	72	73	D
58	F	30	1HS	2	2+	2+	2	1+	2	100	100	80	D
*59	F	32	2	1	0+	0+	0+	0+	0+	100	100	100	C+

#	SEX	AGE	EDUCATION	SELF- SCORE	SELF- TEST	INTER- VIEW 1	INTER- VIEW 2	INTER- VIEW 3	AVERAGE PROFIC.	TAPE ONE	TAPE TWO	TAPE THREE	AVERAGE COMPREHEN.
*60	F	21	HS	2+	2+	1	1	1	1	100	94	97	D
61	M	31	HS	2	2+	3	3	3	3	100	94	100	D
62	F	25	6	1+	1+	1	1	1	1	100	83	90	C
63	M	14	1HS	2+	3+	2+	2	2+	2+	100	100	100	D
64	F	38	2COLL	3	4+	2	1+	2	2	100	100	100	D
65	M	14	1HS	2+	3+	2+	3	2+	2+	100	100	100	D
66	F	30	HS	2+	3+	1+	1	1	1	100	94	97	C+
*68	F	42	2HS	2+	3+	2	1+	1+	1+	100	100	100	D
69	F	22	COLL	3+	3	3	2+	3	3	100	94	100	D+
*70	F	19	1COLL	3	3+	1	0+	1+	1	100	100	97	C
71	M	43	COLL	3+	3+	3+	3+	4	3+	100	100	97	E
*72	M	27	1HS	3	3+	1	1+	1	1	100	100	90	C
73	F	22	COLL	3+	3+	3+	3+	4	3+	100	100	100	E
74	F	36	HS	2+	3+	2+	3	3	3	100	94	100	D+
75	M	63	6	2+	3+	1+	1+	1+	1+	100	100	87	D
76	M	54	1HS	3+	3+	2+	2+	2+	2+	100	94	90	E
*77	M	43	2HS	2+	3	2	1+	1+	1+	100	100	97	E
78	M	14	6	2	1	1	1	1+	1	100	100	97	D
79	F	13	5	2+	2+	1	0+	0+	0+	100	94	93	C
80	M	13	4	1+	0+	0+	0+	0+	0+	100	89	90	C

APPENDIX 11.0

PROSPECTS FOR A COMPUTER-ASSISTED DIALECT ADAPTATION

What follows is a first attempt at determining the feasibility of adapting the Ibaloi New Testament for the Karao people. It has been done following the guidelines presented by David Weber and William Mann in an article entitled, *Assessing the Prospects for Computer-Assisted Dialect Adaptation in a Particular Language* in *Notes on Linguistics* 15, 29-40. It has been done in the simplest way possible by showing the changes that were made to two narrative passages in the New Testament. We realize that a broader range of texts would have to be analyzed before a final decision could be made. On the other hand, the almost 300 changes that are illustrated in these two texts are probably representative of the kind of changes that would need to be made. One of the key difficulties with this kind of a study is that we are comparing texts in Ibaloi written in a final orthography, to texts in Karao which has not even had a full phonological analysis. We suspect, though, that the changes would become fewer rather than more by the time a morphophonemic analysis was completed and an orthography developed.

The categories of changes that are suggested at the end are based upon a cursory analysis. They are not based upon any a priori categories. There is also a residue category of changes which we could not define adequately. Other than a few observations, the absence of a conclusion will be noted. We do not have the expertise to know which changes are programmable and which are not.

11.1 Luke 10: 30 - 37

IB:	Sinongbathan	nēn	Jesus	ni	arig,	ja	kōwan	to	ey,	"Maray	sakey	ya
	1	2	3	4	5	6	7	8	9	10		
KA:	Siyongbathan		Jesus	na	arig,	a	kigwan	to	ey,	"Gwayrey	sa-kin	
IB:	too;	emanshedong	ja	edapod	Jerusalem	ja	ondaw	shi	Jiriko.	Nem		
		11	12	13	14	15	16	17	18	19		
KA:	too;	manchachalong	a	edafod	Jerusalem	a	onkowan	cha	Jiriko.	Nem		
IB:	sota	ira	tolisan,	tinodisan	sha	et	indaray	angken	baro	to.		
	20	21	22	23	24	25	26	27	28	29		
KA:	sema	iren	tolisan,	tiyolisan	cha	et	idarey	pati	baro	tho.		
IB:	Pinegpeg-as	sha	et	indekjas	shen	naipeng.	Sotan	ma	ey	naytompong		
	30	31	32	33	34	35	36	37	38	39		
KA:	Piyegpeg-as	cha	et	inpayas	chen	epapeng.	Seman	na	ey	iyaytompong		

IB: ngon waray pari ni Hodiyoſ ja emanshedong noddan na kalsara. Idi

KA: ngon gwarey pari na Hodiyoſ a manchachalong chiwan a kalsara. Idi

IB: inon-an to sota toon naypolay, dinigdig to ja nanshalan shi

KA: mita tho ma toon iyaypolay, diyigdig ton iyanchalan cha

IB: naykilig. Idi naksheng iyay, wara aowan i Hodiyoſ sa para tolong

KA: iyaykilig. Idi iyakcheng iyay, gwara aowan i Hodiyoſ a para cha-cha

IB: met laeng ni pari ja nanshalan noddan, nem inges to met laeng i

KA: met laeng na pari a iyanchalan chiwan, nem inges to met laeng i

IB: inpasing to. Idi inon-an to sota toon tinodisan sha, nanshalan

KA: inpasing to. Idi mita tho ma toon tiyodisan cha, iyanchalan

IB: noddta naykilig. Nem idi nanshalan aliy sakey ya toon i-Samaria

KA: chiwa iyaykilig. Nem idi dima-bas aliy sa-kin toon i-Samaria

IB: noddan, ja aliwen kait nonta Hodiyoſ sa tinodisan sha, inon-an to

KA: a nat kadgwa niwa Hodiyoſ a tiyolisan cha, mita tho

IB: et naysemekan noddta too. Dimaw, to simbi et to inekasan sota ira

KA: et iyaysemekan chiwa too. Kimowan, to sibi et iyagasan to ira ma

IB: sogat to ni danen edaokan ni adak, asan toka bedbeshi. Jet

KA: sogat to na danen edaokan na adak, asan toxa bedberi. Et

IB: inpankabajo to noddta kabajo to et indaw to noddta baley ya

KA: inpansahay thod ma kabajo tho et inkowan tod ma baley a

IB: shiwesan et inajomanan tod man. Idi ewa-wa, inbo-day toy pilak

KA: cha-gwesan et kiyajo-an tod man. Idi egwa-gwa, inbo-day toy pilak

IB: to et in-akan to nodta emanbantay nonta baley ya shiwesan, ja

KA: to et in-i-kan tod ma nayanbantay niwa baley a cha-gwesan, a

IB: kowan to ey, 'Ajowanin iyay ya too et no on-oli-ak ali,

KA: kigwan to ey, 'Kaja-im iyay a too et no on-oli-ak ali,

IB: manshedanak alid jay et bayshan taka no pigay kastoen mon para

KA: onsa-marak alid jay et baychan taxa no piyay kastosen mon para

IB: son si-kato." Jet si Jesus inbaga to so nonta maistoro ni

KA: cha si-katho." Et si Jesus imbaga thod ma maistoro na

IB: dinteg ey, "Jet saja tedon too ja nanshalan nodta kad-an ni

KA: dinteg ey, "Et seja tedon toon dima-bas chiwa kad-an na

IB: toon etolisan, sipa son si-kara i kowan mo ey kait to?

KA: toon etolisan, siyed si-karey konen mon kadgwa tho?

IB: Sota maistoro ni dinteg ja nansalodsod, simongbat ja kowan to ey,

KA: Sema maistoro na dinteg a engibaga, simongbat a konen to ey,

IB: "Siapri sota engaasi so si-kato." Jet si Jesus, kowan to ey,

A: "Siapri sema engaasid si-katho." Et si Jesus, kigwan to ey,

IB: "Qwen et sajay ngoy pesing mo so ni eshom."

KA: "Axow et sajay ngoy pesing mod echom."

11.2 Acts 9: 1 - 9

IB: Montan na tiapo, ngaaw ni olay i neanem nen Saulo so nonta ira

KA: Montan a tiapo, ngaaw na olay i neanem Saulo ired ma

IB: emati son Apo Jesus, ja piyan ton pasiya ja bono-en na emin ira.

KA: ematid Apo Jesus, a piyan ton pasiyan bono-en a emin ira.

IB: Isonga dimaw so nonta kangeto-an na pari, jet en engala ni

KA: Isonga kimowan chiwa kahayangan a pari, et iyangda na

IB: palobos ton solat ja iparang to so nonta opisiyal ni sa-nopan ni

KA: palobos ton solat a iparang tod ma opisiyal na si-nofan na

IB: Hodiyo shi Damasko. Say no waray asen ton daleki, ono bibii,

KA: Hodiyo cha Damasko. Say no gwarey si-nengen ton daleki, ono bibii,

IB: ja emati so nen Jesus, mebedin men angken a-shelen to ira, jet

KA: a ematid Jesus, mebedin men angken chedmethen to ira, et

IB: idaw to shi Jerusalem.

KA: ikowan tod Jerusalem.

IB: Nem idi eman-ekad nodta shalan na nay-esop shi Damasko, ebigla ja

KA: Nem idi man-a-axad chiwa chalan a iyay-esop cha Damasko, ebigten a

IB: waray silew alid dangit, jet dinikmot tos Saulo. Jet si Saulo,

KA: gwarey silew alid dangit, et dinigwen tos Saulo. Et si Saulo

IB: eto-dang shi bo-day. Jet waray intenengan ton esel ja kowan to

KA: iyatgwang cha bo-day. Et gwarey inki-ngelan ton esel a towan kona

IB: ey, "Saulo, Saulo, apay nga mowakka pedigata?"

KA: ey, "Saulo, Saulo, niyana nainpandigat mo ak?"

IB: Simongbat si Saulo ja kowan to ey, "Sipa ka apo?" Jet waray

KA: Simongbat si Saulon kigwan to ey, "Siya ka apo?" Et gwarey

IB: esel ja simongbat mowan ja kowan to ey, "Si-kak si Jesus, ja

KA: esel a simongbat mowan a kigwan to ey, "Si-kak si Jesus, a

IB: maybidang ey moka panpedigata, ta epaladoy moka pesing so ira

KA: maybilang ey moka nainpandiga mo, tep eda-kad i nainpasing mo ired

IB: nonta emati son si-kak. Nem dayat ka, jet daw ka shima ili ni

KA: ma ematid si-kak. Nem akawat ka, et kowan ked ma ili na

IB: Damasko. Waray mengikowan son si-kam shiman, no ngarantoy

KA: Damasko. Gwarey mengowa cha si-kam chiwan, no ngoy

IB: dag-en mo."

KA: a-magen mo."

IB: Sota inodop nen Saulo, kimeneng iren dimayat, ja nasdengan, ta

KA: Sema iyodop Saulo, simalcheng ira, a ya-nen, tep

IB: intenengan sha sota esel, nem enshiy sha inon-an na too. Si

KA: inki-ngelan cha ma esel, nem nagwarey cha miten too. Si

IB: Saulo ngo, bimangon, jet idi binikat toy mateto ja kowan to ey

KA: Saulo ngo, bimangon, et idi mimorag toy matheto a kigwan to ey

IB: onshemang, eg mala maka-asas. Isonga say inpasing nonta inodop

KA: onsi-meng, eg mala maxasi-neng. Isonga say inpasing niwa iyodop

IB: to, shinewat sha et indaw sha shi Damasko. Jet idi indaw shed
 279 280 281 282 283 284 285 286 287

KA: to, chigwat cha et inkowan ched Damasko. Et idi inkowan ched

IB: Damasko, tedon akew ja eg aaka-asas, eg engengan, tan eg
 288 289 290 291 292 293

KA: Damasko, tedon akew a eg maxa-si-neng, nat enga-engan, tan nat

IB: nan-in-inom ni shanow.
 294 295 296

KA: engi-no-inom na chanow.

11.3 CATEGORIES OF CHANGE

NUMBER OF CHANGES

1. Root changed by an irregular sound change	20
2. Orthographic change	10
3. Morphophonemic change	8
4. Neutralized morphophonemic change	10
5. Lexical substitution (probably unconditional)	60
6. Root changed by regular sound change	21
7. Case-marking particle rewrite	62
8. Linker rewrite	36
9. Affix rewrite	26
10. Stylistic (unpredictable) affix change	10
11. Stylistic lexical substitution	15
12. Stylistic change of word order	5
13. Stylistic deletion of word	4
14. Residue	9

TOTAL	296

11.4 CHANGES IDENTIFIED IN EACH CATEGORY

- 2, 16, 29, 47, 67, 87, 98, 100, 104, 106, 128, 132, 134, 150, 159, 202, 233, 271, 275, 289.
- 7, 36, 58, 113, 114, 191, 210, 217, 227, 247.
- 8, 21, 27, 37, 144, 146, 244, 283.
- 13, 14, 24, 42, 43, 130, 183, 201, 232, 257.
- 9, 18, 32, 46, 60, 66, 76, 80, 81, 86, 90, 94, 102, 107, 110, 112, 115, 120, 123, 129, 133, 137, 143, 149, 160, 162, 176, 178, 180, 188, 197, 198, 208, 211, 212, 213, 214, 216, 218, 221, 225, 226, 235, 236, 241, 242, 243, 251, 252, 256, 260, 261, 262, 265, 267, 269, 281, 285, 286, 291.
- 12, 21, 25, 33, 41, 53, 57, 64, 70, 72, 85, 127, 138, 166, 204, 263, 266, 280, 282, 287, 296.

7. 3, 4, 19, 20, 34, 38, 44, 48, 54, 61, 65, 68, 73, 82, 89, 95, 97, 99, 105, 108, 116, 118, 131, 135, 136, 141, 142, 145, 151, 152, 155, 157, 158, 163, 164, 168, 169, 170, 172, 177, 184, 186, 187, 189, 190, 194, 195, 199, 203, 207, 215, 239, 240, 245, 246, 249, 250, 253, 255, 264, 277, 284, 295.

8. 5, 10, 15, 17, 39, 45, 51, 59, 62, 77, 79, 83, 109, 119, 121, 124, 139, 153, 167, 173, 174, 175, 177, 185, 193, 205, 209, 219, 223, 228, 229, 231, 259, 268, 272, 288.

9. 1, 11, 23, 30, 35, 40, 49, 52, 55, 63, 69, 71, 74, 84, 88, 111, 122, 156, 161, 200, 206, 224, 230, 254, 273, 278.

10. 6, 26, 50, 56, 182, 234, 237, 248, 279, 294.

11. 28, 75, 103, 126, 140, 154, 192, 196, 220, 270, 274, 276, 290, 293, 147.

12. 93, 96, 171, 222, 238.

13. 78, 165, 181, 258.

14. 22, 33, 91, 92, 101, 117, 125, 148, 292.

11.5 OBSERVATIONS

Although there is a large number of changes, most of them are of the predictable variety. The orthographic changes, roots modified by regular sound change, linker rewrites, case-marker rewrites, and unconditional lexical substitutions would appear to be programmable.

APPENDIX 12.0

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

The following statistical analysis of the survey data was done with StatPar, a statistical analysis package produced by Walonick Associates.

APPENDIX 12.0 A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution for Variable 2 - 12.1.1

AGE	Number	Percent
A = 19 or younger	14	23.3 %
B = 20 - 29	15	25.0 %
C = 30 - 39	11	18.3 %
D = 40 - 49	9	15.0 %
E = 50 - 59	7	11.7 %
F = 60 or older	4	6.7 %
Total	60	100.0 %

Missing cases = 0

Response percent = 100.0 %

Bar Graph of AGE

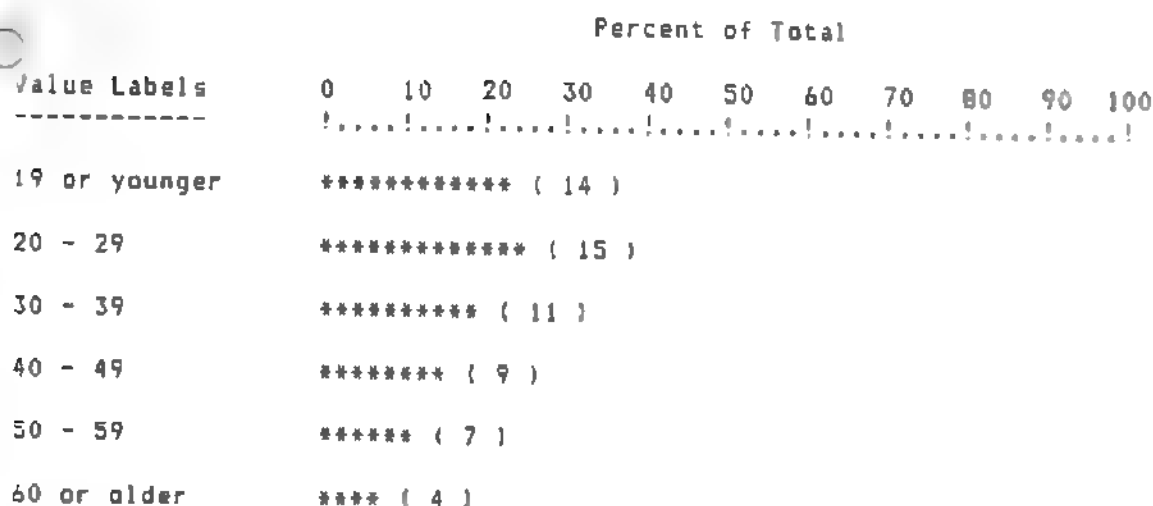
Percent of Total

Value Labels	0	10	20	30	40	50	60	70	80	90	100
-----	'	'	'	'	'	'
19 or younger	*****	(14)									
20 - 29	*****	(15)									
30 - 39	*****	(11)									
40 - 49	*****	(9)									
50 - 59	*****	(7)									
60 or older	****	(4)									

Frequency Distribution of Variable 2 in Revised Data Base - 12.1.2

AGE	Number	Percent
A = 19 or younger	14	23.3 %
B = 20 - 29	15	25.0 %
C = 30 - 39	11	18.3 %
D = 40 - 49	9	15.0 %
E = 50 - 59	7	11.7 %
F = 60 or older	4	6.7 %
Total	60	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of AGE

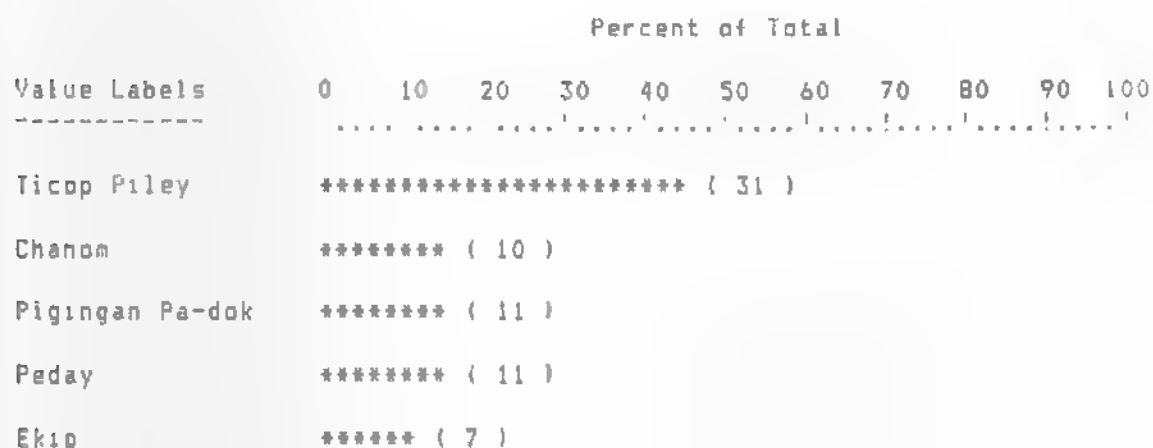


A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution for Variable 4 - 12.2.1

RESIDENCE	Number	Percent
A = Ticop Piley	31	44.3 %
B = Chanom	10	14.3 %
C = Pigingan Pa-dok	11	15.7 %
D = Peday	11	15.7 %
E = Ekip	7	10.0 %
Total	70	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of RESIDENCE

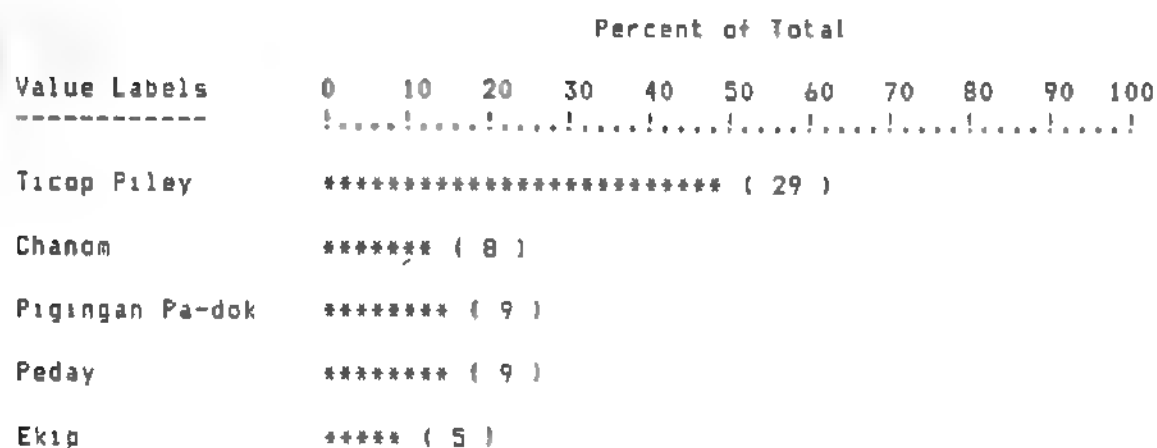


A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution of Variable 4 in Revised Data Base - 12.2.2

RESIDENCE	Number	Percent
A = Ticop Piley	29	48.3 %
B = Chanom	8	13.3 %
C = Pigingang Pa-dok	9	15.0 %
D = Peday	9	15.0 %
E = Ekip	5	8.3 %
Total	60	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of RESIDENCE



A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

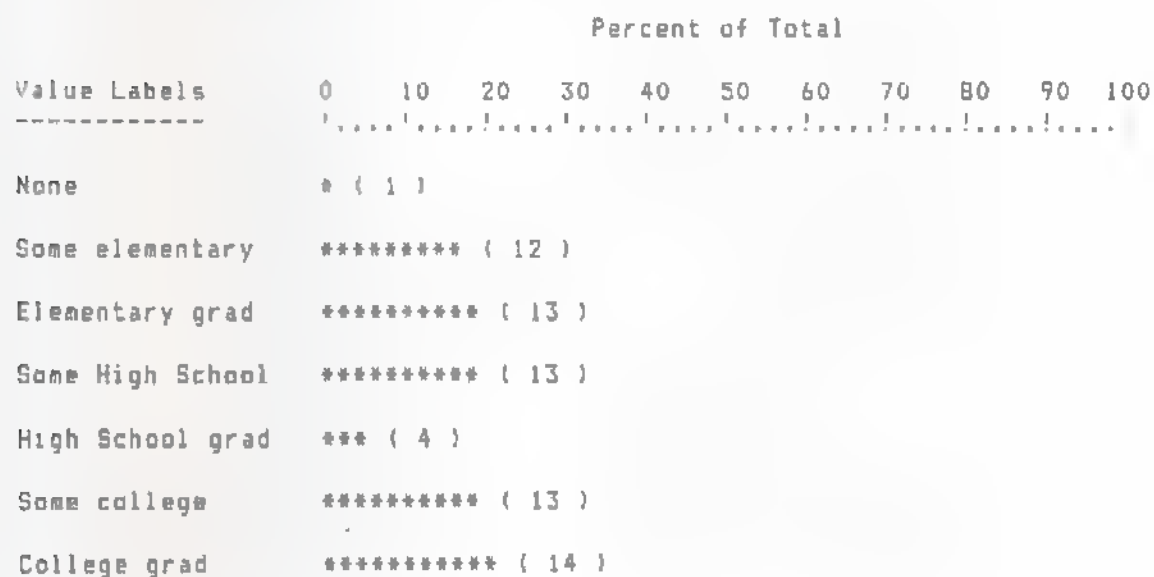
Frequency Distribution for Variable 6 - 12.3.1

EDUCATIONAL ATTAINMENT	Number	Percent
A = None	1	1.4 %
B = Some elementary	12	17.1 %
C = Elementary grad	13	18.6 %
D = Some High School	13	18.6 %
E = High School grad	4	5.7 %
F = Some college	13	18.6 %
G = College grad	14	20.0 %
Total	70	100.0 %

Missing cases = 0

Response percent = 100.0 %

Bar Graph of EDUCATIONAL ATTAINMENT



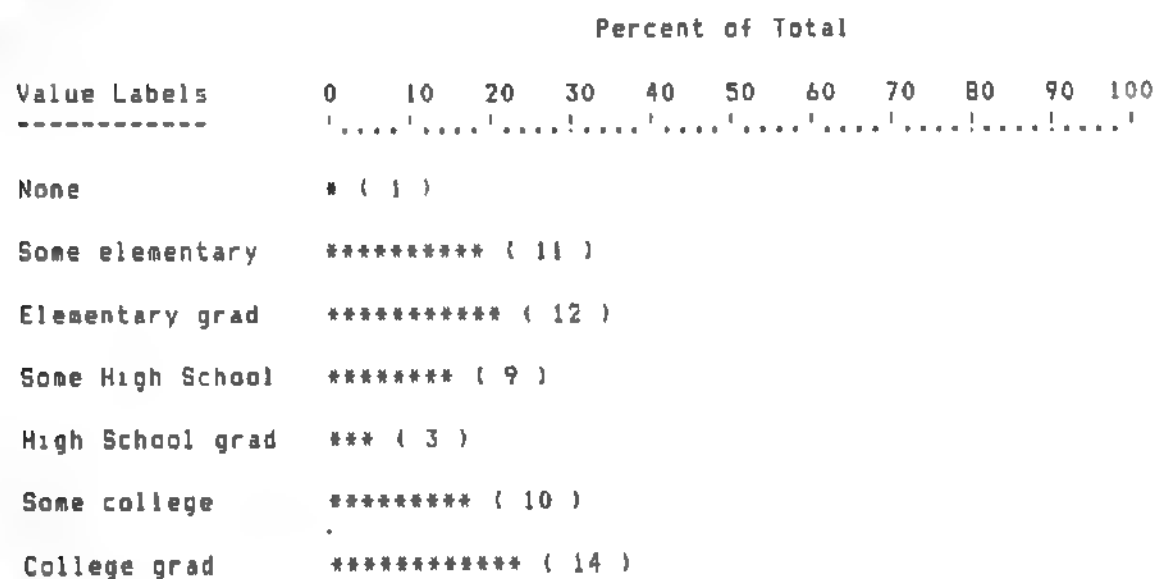
A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution of Variable 6 in Revised Data Base - 12.3.2

EDUCATIONAL ATTAINMENT	Number	Percent
A = None	1	1.7 %
B = Some elementary	11	18.3 %
C = Elementary grad	12	20.0 %
D = Some High School	9	15.0 %
E = High School grad	3	5.0 %
F = Some college	10	16.7 %
G = College grad	14	23.3 %
Total	60	100.0 %

Missing cases = 0
Response percent = 100.0 %

Bar Graph of EDUCATIONAL ATTAINMENT



A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

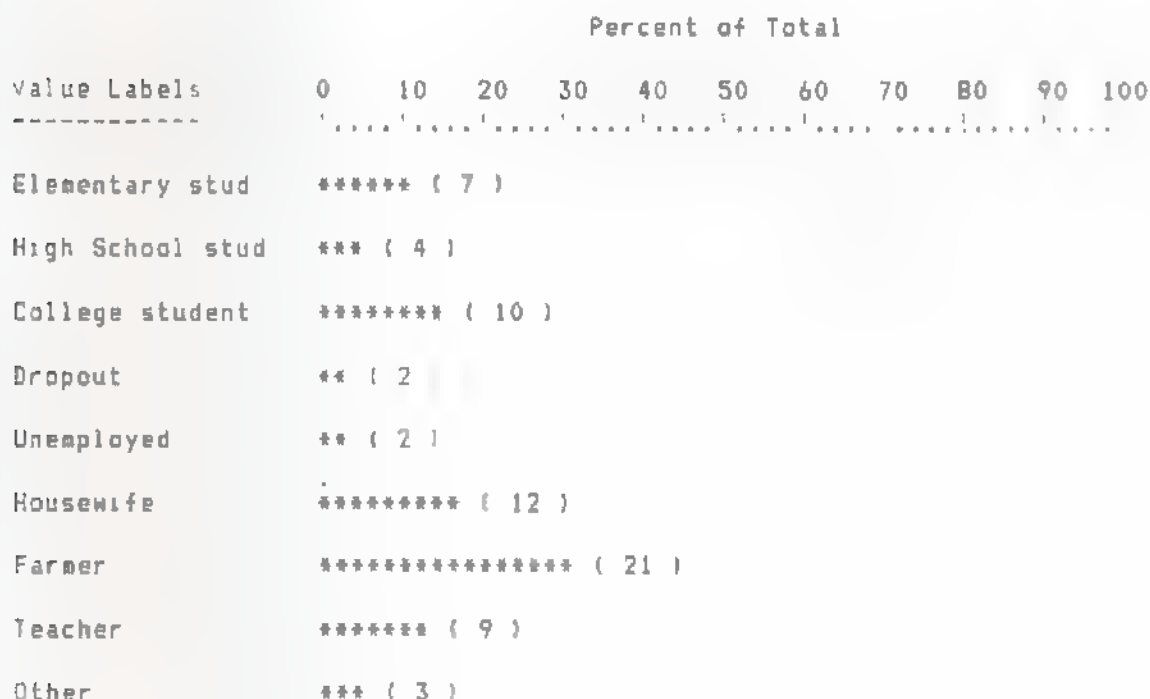
Frequency Distribution for Variable 7 - 12.4.1

OCCUPATION	Number	Percent
A = Elementary stud	7	10.0 %
B = High School stud	4	5.7 %
C = College student	10	14.3 %
D = Dropout	2	2.9 %
E = Unemployed	2	2.9 %
F = Housewife	12	17.1 %
G = Farmer	21	30.0 %
H = Teacher	9	12.9 %
I = Other	3	4.3 %
Total	70	100.0 %

Missing cases = 0

Response percent = 100.0 %

Bar Graph of OCCUPATION



A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

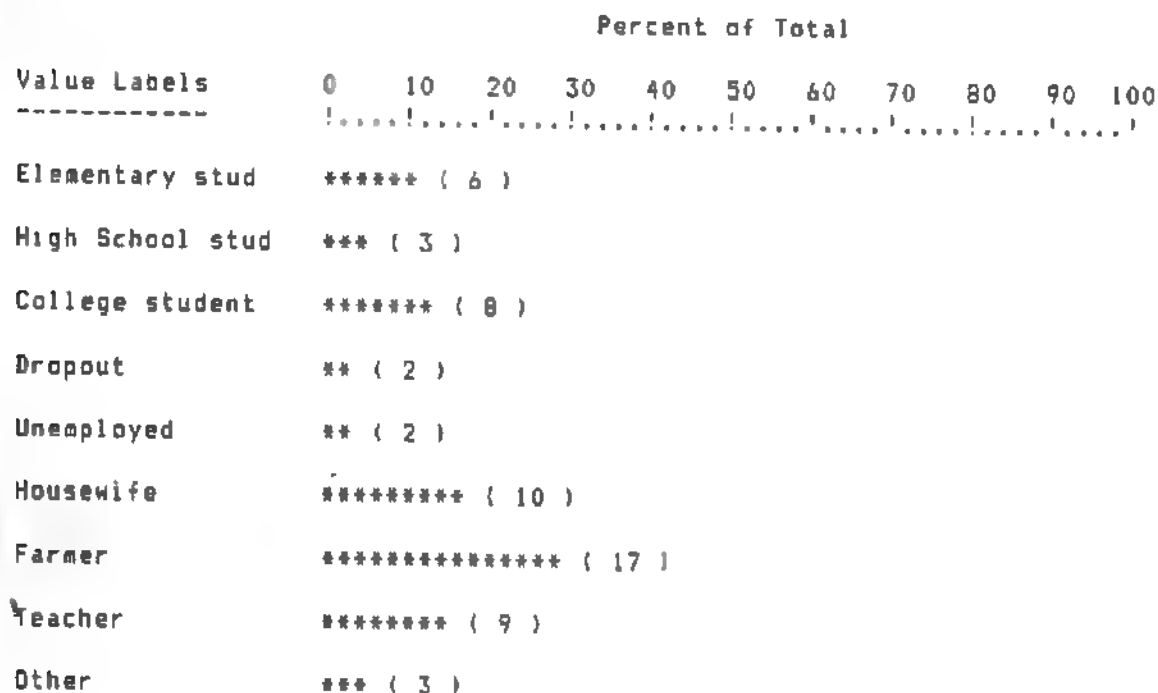
Frequency Distribution of Variable 7 in Revised Data Base - 12.4.2

OCCUPATION	Number	Percent
A = Elementary stud	6	10.0 %
B = High School stud	3	5.0 %
C = College student	8	13.3 %
D = Dropout	2	3.3 %
E = Unemployed	2	3.3 %
F = Housewife	10	16.7 %
G = Farmer	17	28.3 %
H = Teacher	9	15.0 %
I = Other	3	5.0 %
Total	60	100.0 %

Missing cases = 0

Response percent = 100.0 %

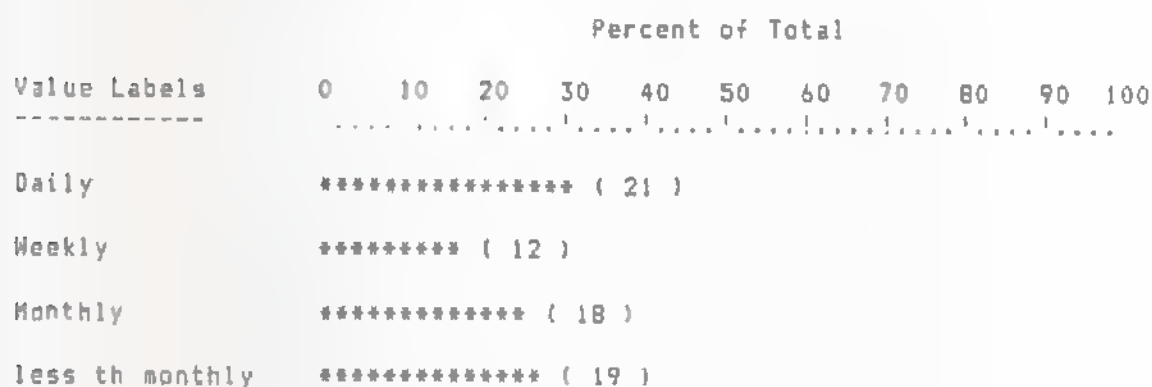
Bar Graph of OCCUPATION



Frequency Distribution for Variable 8 - 12.5.1

TRAVEL FROM THE KARAO AREA	Number	Percent
A = Daily	21	30.0 %
B = Weekly	12	17.1 %
C = Monthly	18	25.7 %
D = less th monthly	19	27.1 %
Total	70	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of TRAVEL FROM THE KARAO AREA

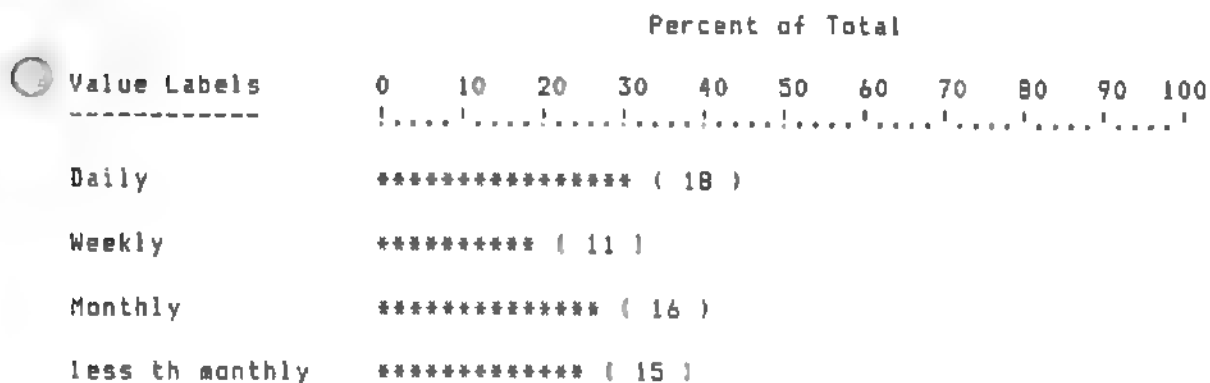


A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution of Variable B in Revised Data Base - 12.5.2

TRAVEL FROM THE KARAO AREA	Number	Percent
A = Daily	18	30.0 %
B = Weekly	11	18.3 %
C = Monthly	16	26.7 %
D = less th monthly	15	25.0 %
Total	60	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of TRAVEL FROM THE KARAO AREA

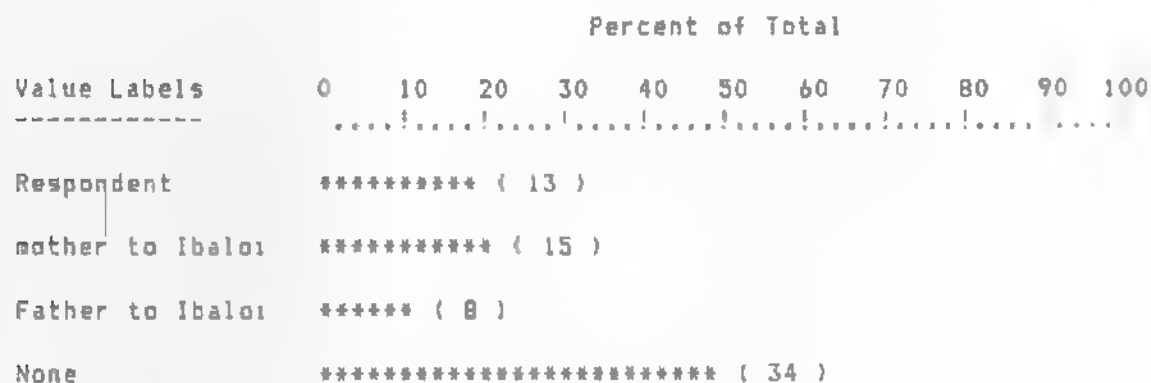


A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution for Variable 10 - 12.6.1

INTERMARRIAGE WITH IBALOIS	Number	Percent
A = Respondent	13	18.6 %
B = mother to Ibaloi	15	21.4 %
C = Father to Ibaloi	8	11.4 %
D = None	34	48.6 %
Total	70	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

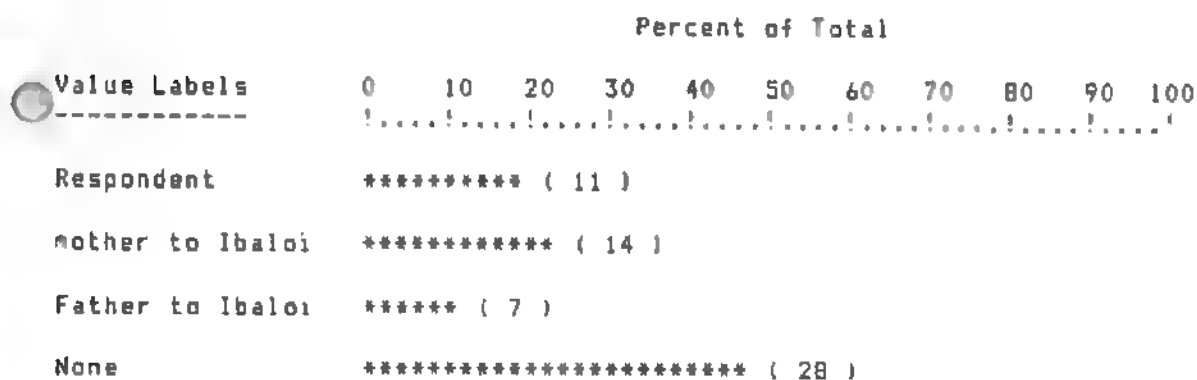
Bar Graph of INTERMARRIAGE WITH IBALOIS



Frequency Distribution of Variable 10 in Revised Data Base - 12.6.2

INTERMARRIAGE WITH IBALOIS	Number	Percent
A = Respondent	11	18.3 %
B = mother to Ibaloi	14	23.3 %
C = Father to Ibaloi	7	11.7 %
D = None	28	46.7 %
Total	60	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of INTERMARRIAGE WITH IBALOIS



A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Frequency Distribution of Variable 11 in Revised Data Base - 12.7

SELF-SCORE IN IBALOI	Number	Percent
1 =	2	3.3 %
1.5 =	3	5.0 %
2 =	7	11.7 %
2.5 =	12	20.0 %
3 =	11	18.3 %
3.5 =	18	30.0 %
4 =	7	11.7 %
Total	60	100.0 %
Missing cases = 0		
Response percent = 100.0 %		

Bar Graph of SELF-SCORE IN IBALOI

Value Labels	Percent of Total										
	0	10	20	30	40	50	60	70	80	90	100
1	** (2)										
1.5	*** (3)										
2	***** (7)										
2.5	***** (12)										
3	***** (11)										
3.5	***** (18)										
4	***** (7)										

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

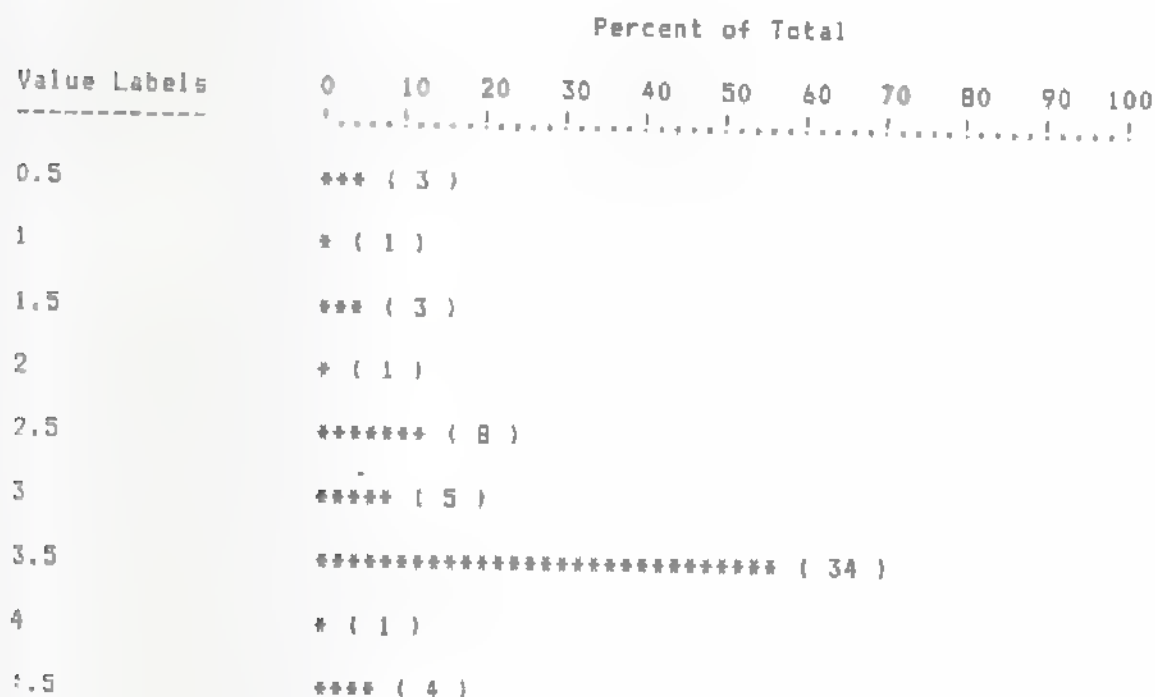
Frequency Distribution of Variable 12 in Revised Data Base - 12.8

SELF-TEST IN IBALOI	Number	Percent
0.5 =	3	5.0 %
1 =	1	1.7 %
1.5 =	3	5.0 %
2 =	1	1.7 %
2.5 =	8	13.3 %
3 =	5	8.3 %
3.5 =	34	56.7 %
4 =	1	1.7 %
4.5 =	4	6.7 %
Total	60	100.0 %

Missing cases = 0

Response percent = 100.0 %

Bar Graph of SELF-TEST IN IBALOI

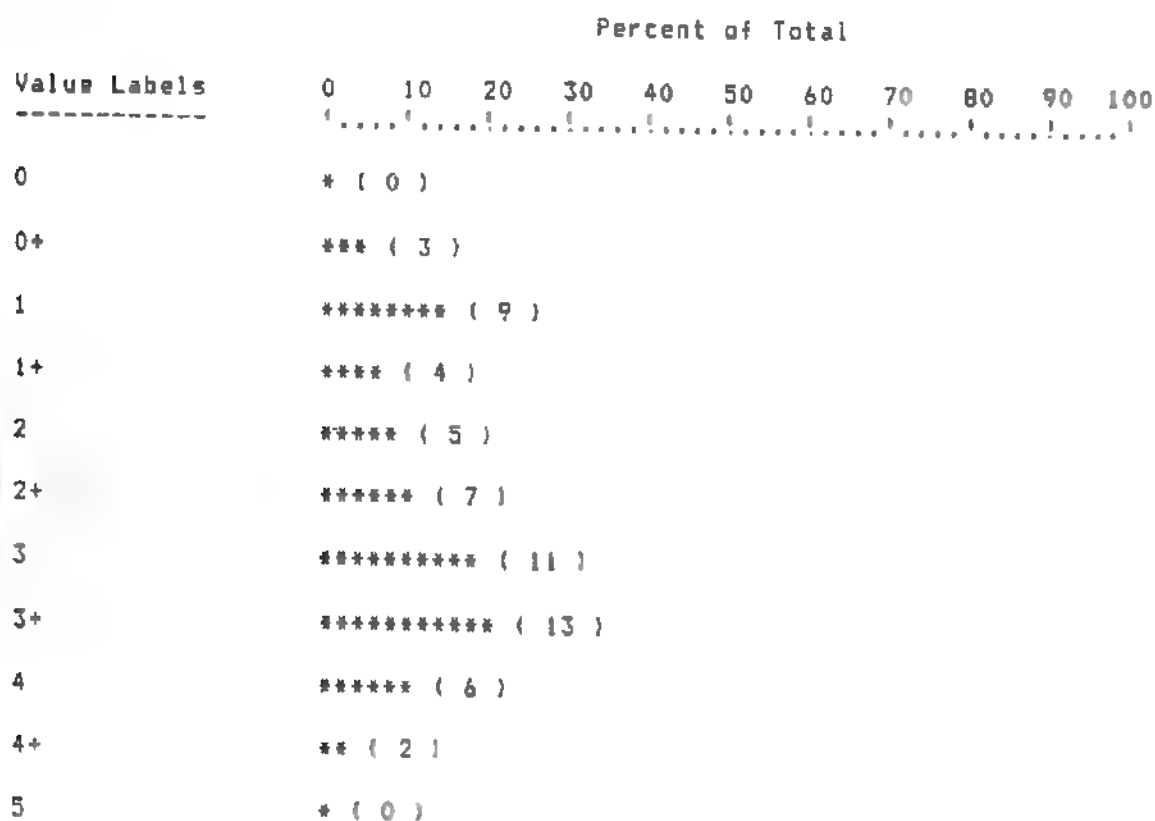


Frequency Distribution of Variable 14 in Revised Data Base - 12.9

INTERVIEW SCORES ON ORDINAL SCALE	Number	Percent
A = 0	0	0.0 %
B = 0+	3	5.0 %
C = 1	9	15.0 %
D = 1+	4	6.7 %
E = 2	5	8.3 %
F = 2+	7	11.7 %
G = 3	11	18.3 %
H = 3+	13	21.7 %
I = 4	6	10.0 %
J = 4+	2	3.3 %
K = 5	0	0.0 %
Total	60	100.0 %

Missing cases = 0
Response percent = 100.0 %

Bar Graph of INTERVIEW SCORES ON ORDINAL SCALE



A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

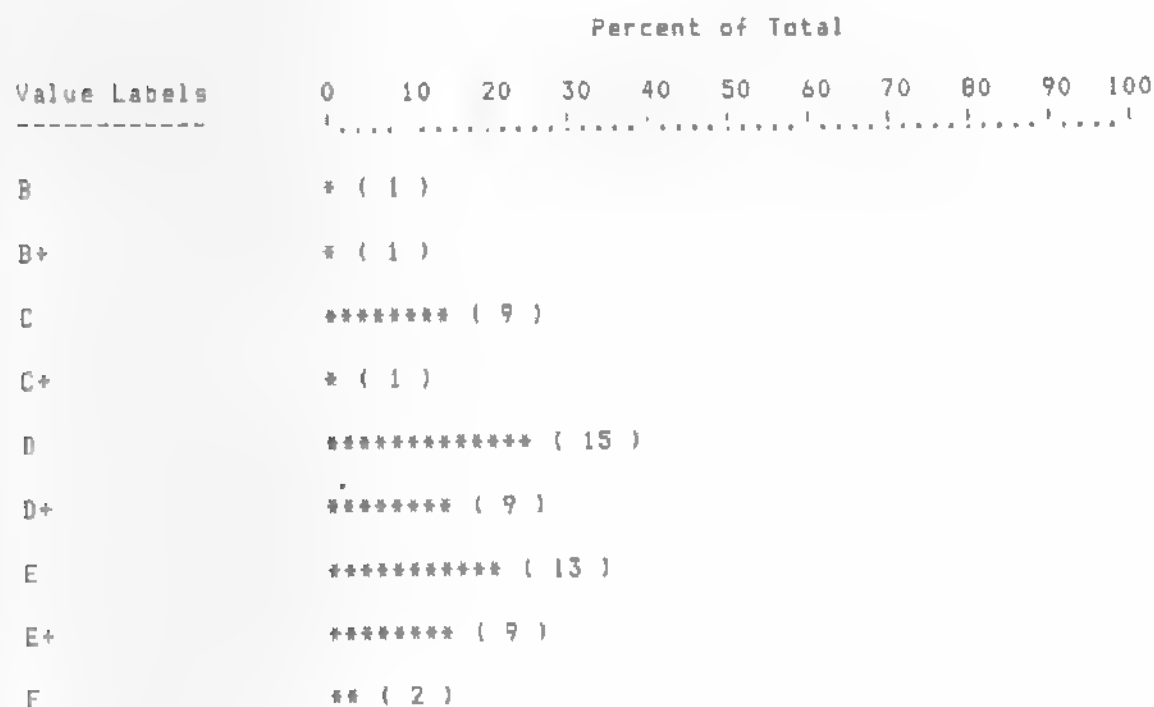
Frequency Distribution of Variable 15 in Revised Data Base - 12.10

COMPREHENSION SCORE	Number	Percent
B =	1	1.7 %
B+ =	1	1.7 %
C =	9	15.0 %
C+ =	1	1.7 %
D =	15	25.0 %
D+ =	9	15.0 %
E =	13	21.7 %
E+ =	9	15.0 %
F =	2	3.3 %
Total	60	100.0 %

Missing cases = 0

Response percent = 100.0 %

Bar Graph of COMPREHENSION SCORE



Descriptive Statistics of Variable 16 - 12.11

SCORE ON KARAO TAPE

Minimum = 83
Maximum = 100
Range = 17
Sum = 5885
Mean = 98.083
Median = 100
Mode = 100
Variance = 19.143
Standard deviation = 4.375

Standard error of the mean = 0.570

95 Percent confidence interval around the mean = 96.967 - 99.200

99 Percent confidence interval around the mean = 96.617 - 99.550

* Unbiased estimates of population *

Variance = 19.468
Standard deviation = 4.412

* Data distribution coefficients *

Skewness = -2.173
Kurtosis = 6.501

Kolmogorov-Smirnov statistic for normality = 3.813

Valid cases = 60
Missing cases = 0
Response percent = 100.0 %

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

Descriptive Statistics of Variable 17 - 12.12

SCORE ON IBALOI TAPE 1

Minimum = 61
Maximum = 100
Range = 39
Sum = 5565
Mean = 92.750
Median = 94
Mode = 100
Variance = 104.787
Standard deviation = 10.237

Standard error of the mean = 1.333

95 Percent confidence interval around the mean = 90.138 - 95.362

99 Percent confidence interval around the mean = 89.318 - 96.182

* Unbiased estimates of population *

Variance = 106.564
Standard deviation = 10.323

* Data distribution coefficients *

Skewness = -1.735
Kurtosis = 5.215

Kolmogorov-Smirnov statistic for normality = 2.212

Valid cases = 60
Missing cases = 0
Response percent = 100.0 %

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Descriptive Statistics of Variable 18 - 12.13

SCORE ON IBALOI TAPE 2

Minimum = 53

Maximum = 100

Range = 47

Sum = 5385

Mean = 89.750

Median = 93

Mode = 100

Variance = 122.821

Standard deviation = 11.082

Standard error of the mean = 1.443

95 Percent confidence interval around the mean = 86.922 - 92.578

99 Percent confidence interval around the mean = 86.035 - 93.465

* Unbiased estimates of population *

Variance = 124.903

Standard deviation = 11.176

* Data distribution coefficients *

Skewness = -1.417

Kurtosis = 4.601

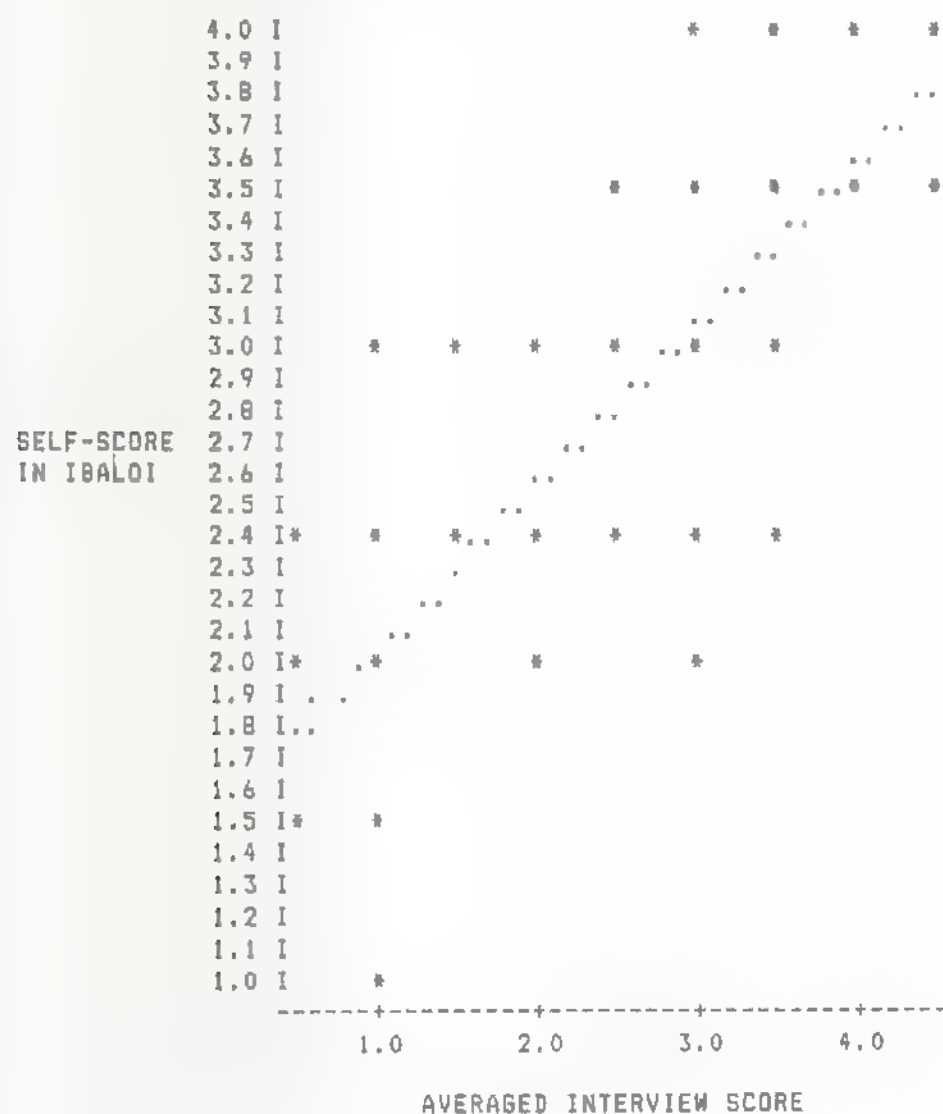
Kolmogorov-Smirnov statistic for normality = 1.689

Valid cases = 60

Missing cases = 0

Response percent = 100.0 %

Correlation Between Proficiency Tests - 12.14.1



Mean of X = 2.592
 S.D. of X = 1.122
 Mean of Y = 2.908
 S.D. of Y = 0.778

Correlation coefficient = 0.738
 Degrees of freedom = 58
 Slope of regression line = 0.512
 Y intercept = 1.582

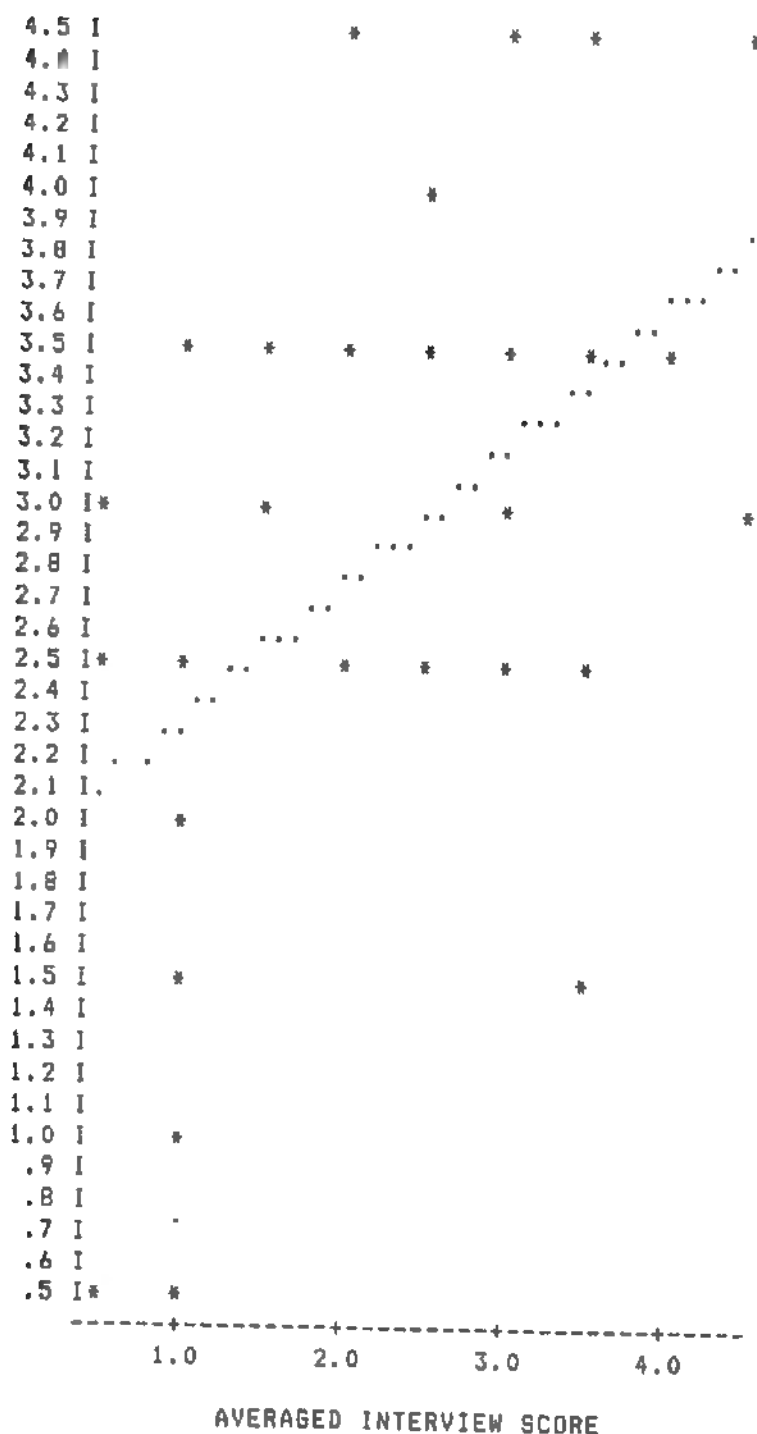
Valid cases = 60
 Missing cases = 0
 Response % = 100

Regression equation : $Y' = 0.512 X + 1.582$
 Standard error of estimate for regression = 0.525
 t statistic for correlation coefficient = 8.322
 Significance of correlation coefficient = 0.000

Spearman's rank-order correlation coefficient = 0.747
 t statistic for correlation coefficient = 8.564
 Significance of correlation coefficient = 0.000

Correlation Between Proficiency Tests - 12.14.2

SELF-TEST
IN IBALOI



Mean of X = 2.592

S.D. of X = 1.122

Mean of Y = 3.083

S.D. of Y = 0.926

Correlation coefficient = 0.535

Degrees of freedom = 58

Slope of regression line = 0.442

Y intercept = 1.939

Valid cases = 60

Missing cases = 0

Response % = 100

Regression equation : $Y' = 0.442 X + 1.939$

Standard error of estimate for regression = 0.782

t statistic for correlation coefficient = 4.824 97

Significance of correlation coefficient = 0.000

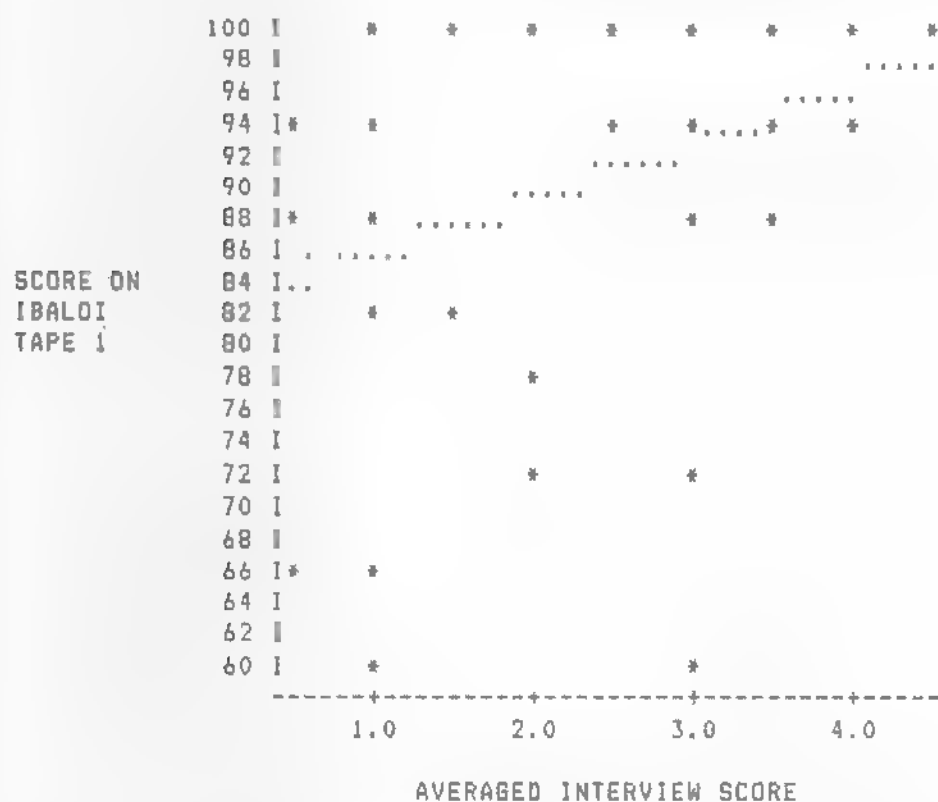
Pearson's rank-order correlation coefficient = 0.515

t statistic for correlation coefficient = 4.570

Significance of correlation coefficient = 0.000

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Correlation Between Proficiency Tests - 12.14.3

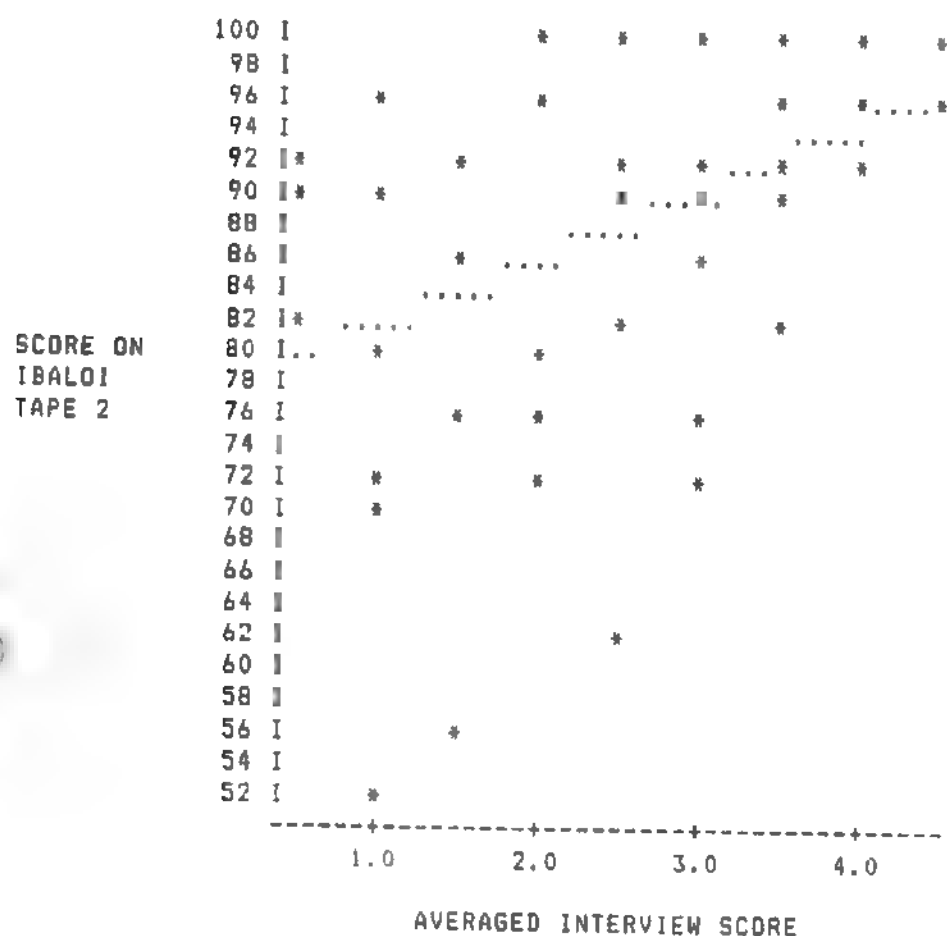


Mean of X = 2.592	Correlation coefficient = 0.383	Valid cases = 60
S.D. of X = 1.122	Degrees of freedom = 58	Missing cases = 0
Mean of Y = 92.750	Slope of regression line = 3.527	Response % = 100
S.D. of Y = 10.323	Y intercept = 83.609	

Regression equation : $Y' = 3.527 X + 83.609$
 Standard error of estimate for regression = 9.535
 t statistic for correlation coefficient = 3.160
 Significance of correlation coefficient = 0.003

Spearman's rank-order correlation coefficient = 0.396
 t statistic for correlation coefficient = 3.288
 Significance of correlation coefficient = 0.002

Correlation Between Proficiency Tests - 12.14.4



Mean of X = 2.592
S.D. of X = 1.122
Mean of Y = 89.750
S.D. of Y = 11.176

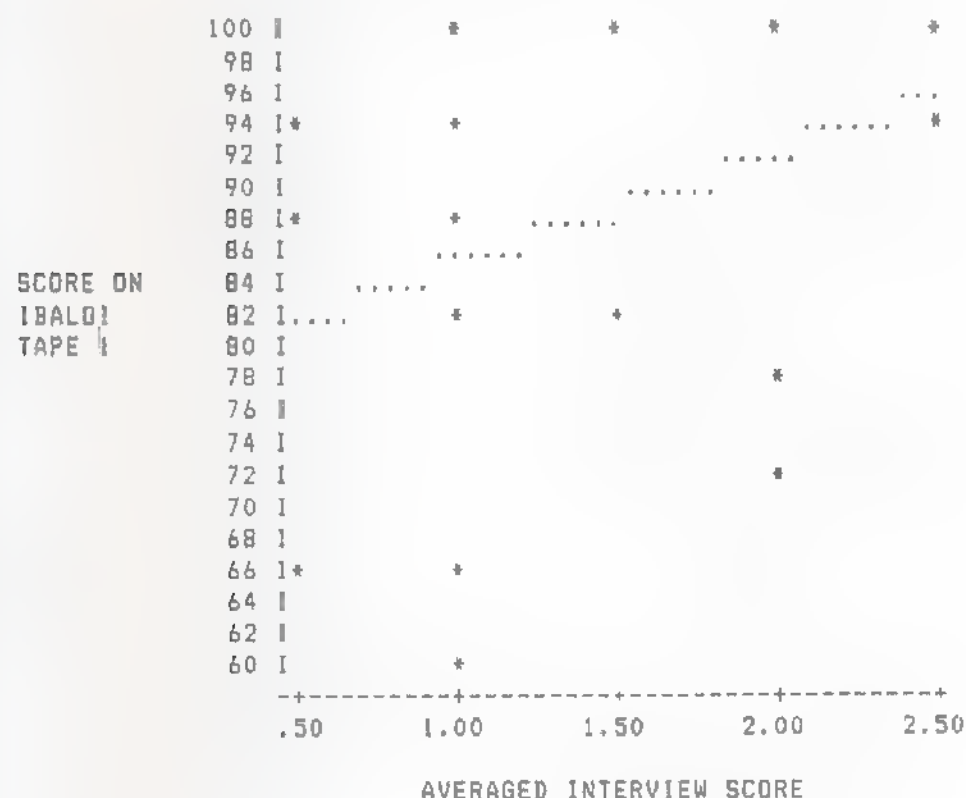
Correlation coefficient = 0.430
Degrees of freedom = 58
Slope of regression line = 4.281
Y intercept = 78.654

Valid cases = 60
Missing cases = 0
Response % = 100

Regression equation : $Y' = 4.281 X + 78.654$
Standard error of estimate for regression = 10.091
t statistic for correlation coefficient = 3.625
Significance of correlation coefficient = 0.001

Spearman's rank-order correlation coefficient = 0.465
t statistic for correlation coefficient = 3.997
Significance of correlation coefficient = 0.000

Correlation Between Tape Tests and Proficiency Scores - 12.14.5



Mean of X = 1.571	Correlation coefficient = 0.414	Valid cases = 28
S.D. of X = 0.703	Degrees of freedom = 26	Missing cases = 0
Mean of Y = 90.393	Slope of regression line = 6.979	Response % = 100
S.D. of Y = 11.852	Y intercept = 79.426	

Regression equation : $Y' = 6.979 X + 79.426$

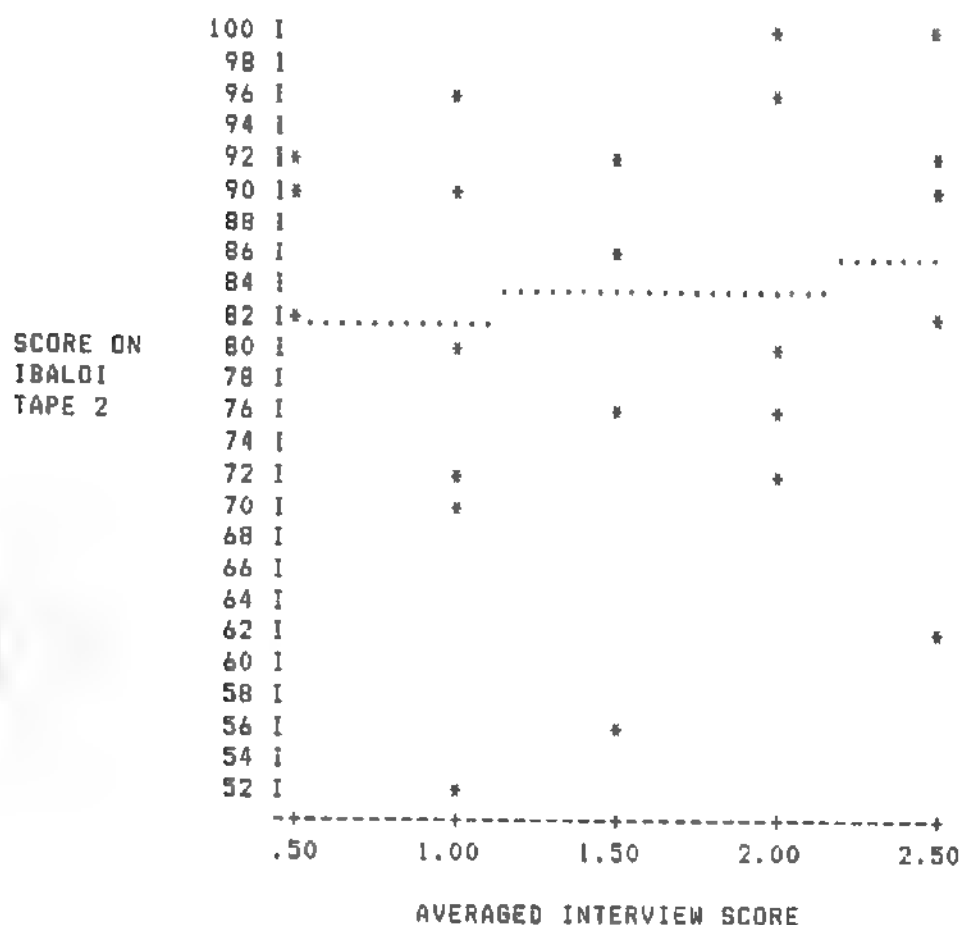
Standard error of estimate for regression = 10.788

t statistic for correlation coefficient = 2.320

Significance of correlation coefficient = 0.027

Spearman's rank-order correlation coefficient = 0.494

Correlation Between Tape Tests and Proficiency Scores - 12.14.6



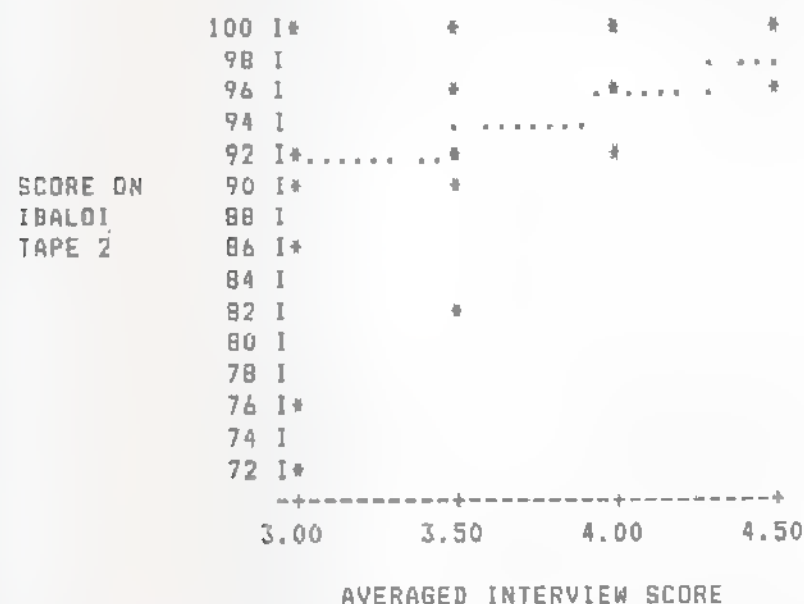
Mean of X = 1.571	Correlation coefficient = 0.106	Valid cases = 28
S.D. of X = 0.703	Degrees of freedom = 26	Missing cases = 0
Mean of Y = 84.857	Slope of regression line = 1.968	Response % = 100
S.D. of Y = 13.055	Y intercept = 81.765	

Regression equation : $Y' = 1.968 X + 81.765$
 Standard error of estimate for regression = 12.981
 t statistic for correlation coefficient = 0.544
 Significance of correlation coefficient = 0.597

Spearman's rank-order correlation coefficient = 0.170

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Correlation Between Tape Tests and Proficiency Scores - 12.14.7



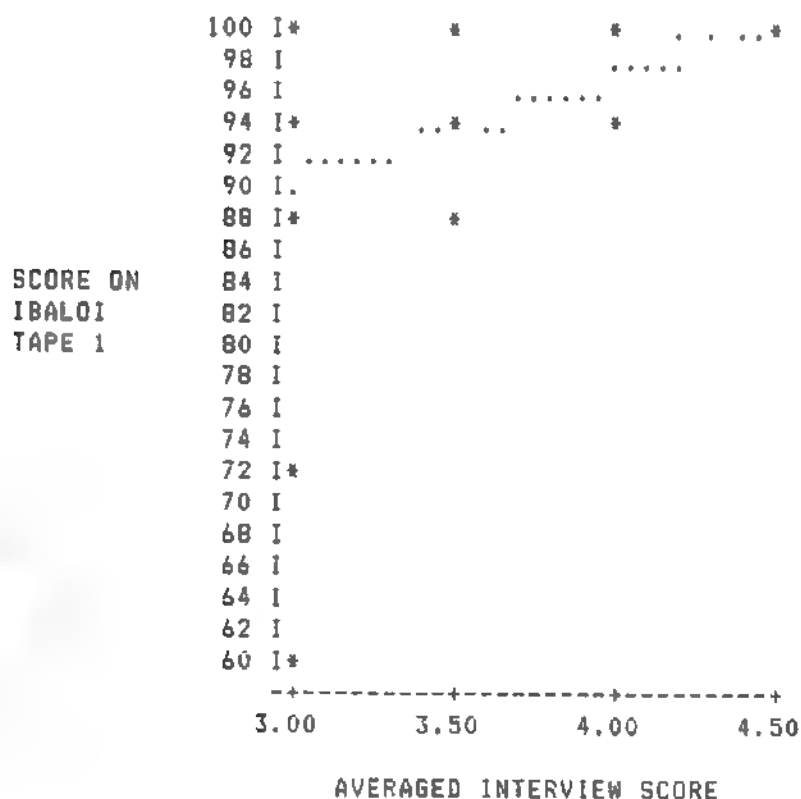
Mean of X = 3.484	Correlation coefficient = 0.304	Valid cases = 32
S.D. of X = 0.449	Degrees of freedom = 30	Missing cases = 0
Mean of Y = 94.031	Slope of regression line = 4.728	Response % = 100
S.D. of Y = 6.981	Y intercept = 77.556	

Regression equation : $Y' = 4.728 X + 77.556$
 Standard error of estimate for regression = 6.651
 t statistic for correlation coefficient = 1.747
 Significance of correlation coefficient = 0.087

Spearman's rank-order correlation coefficient = 0.266
 t statistic for correlation coefficient = 1.512
 Significance of correlation coefficient = 0.137

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Correlation Between Tape Tests and Proficiency Scores - 12.14.8



Mean of X = 3.484	Correlation coefficient = 0.362	Valid cases = 32
S.D. of X = 0.449	Degrees of freedom = 30	Missing cases = 0
Mean of Y = 94.813	Slope of regression line = 6.793	Response % = 100
S.D. of Y = 8.430	Y intercept = 71.141	

Regression equation : $Y' = 6.793 X + 71.141$
 Standard error of estimate for regression = 7.859
 t statistic for correlation coefficient = 2.125
 Significance of correlation coefficient = 0.040

Spearman's rank-order correlation coefficient = 0.447
 t statistic for correlation coefficient = 2.739
 Significance of correlation coefficient = 0.010

Breakdown of Proficiency Scores According to Other Factors

Criterion Variable : AVERAGED INTERVIEW SCORE - 12.15 .1

	Mean	S.D.	N	Pct.
For entire sample (Missing = 0)	2.592	1.122	60	100.0
AGE				
A=19 or younger	1.821	1.154	14	23.3
B=20 - 29	2.933	0.998	15	25.0
C=30 - 39	2.818	0.929	11	18.3
D=40 - 49	3.111	1.112	9	15.0
E=50 - 59	2.714	1.185	7	11.7
F=60 or older	2.000	0.707	4	6.7
SEX				
M=Male	2.733	1.023	30	50.0
F=Female	2.450	1.213	30	50.0
RESIDENCE				
A=Ticop Piley	3.207	0.931	29	48.3
B=Chanom	1.688	1.067	8	13.3
C=Pigingan Pa-dok	2.389	0.858	9	15.0
D=Peday	1.889	1.140	9	15.0
E=Ekip	2.100	0.742	5	8.3
GRADE LEVEL REACHED				
7=	2.714	0.488	7	11.7
6=	1.958	1.054	12	20.0
14=	3.808	0.435	13	21.7
13=	3.500	0.500	3	5.0
11=	3.000	0.707	2	3.3
12=	2.625	0.750	4	6.7
10=	2.625	1.109	4	6.7
8=	2.500	0.000	1	1.7
9=	3.250	0.354	2	3.3
5=	1.500	1.414	2	3.3
1=	3.000	0.000	1	1.7
4=	1.000	0.612	5	8.3
2=	1.500	0.500	3	5.0
0=	1.500	0.000	1	1.7
EDUCATIONAL ATTAINMENT				
A=None	1.500	0.000	1	1.7
B=Some elementary	1.409	0.861	11	18.3
C=Elementary grad	1.958	1.054	12	20.0
D=Some High School	2.833	0.500	9	15.0
E=High School grad	2.500	1.323	3	5.0
F=Some college	2.950	0.685	10	16.7
G=College grad	3.750	0.470	14	23.3

Breakdown of Proficiency Scores According to Other Factors (Continued)

Criterion Variable : AVERAGED INTERVIEW SCORE

	Mean	S.D.	N	Pct.
<hr/>				
OCCUPATION				
A=Elementary stud	0.750	0.274	6	10.0
B=High School stud	3.000	0.500	3	5.0
C=College student	3.125	0.641	8	13.3
D=Dropout	1.750	1.061	2	3.3
E=Unemployed	3.250	0.354	2	3.3
F=Housewife	2.300	1.033	10	16.7
G=Farmer	2.294	0.867	17	28.3
H=Teacher	4.000	0.354	9	15.0
I=Other	3.000	0.500	3	5.0
TRAVEL FROM THE KARAO AREA				
A=Daily	3.417	0.670	18	30.0
B=Weekly	2.591	1.136	11	18.3
C=Monthly	2.188	1.167	16	26.7
D=less th monthly	2.033	0.990	15	25.0

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Breakdown of Intelligibility Scores According to Other Factors

Criterion Variable : SCORE ON IBALOI TAPE 1 - 12.15.2

	Mean	S.D.	N	Pct.
For entire sample (Missing = 0)	92.750	10.323	60	100.0
AGE				
A=19 or younger	90.857	12.793	14	23.3
B=20 - 29	94.200	7.655	15	25.0
C=30 - 39	96.727	3.133	11	18.3
D=40 - 49	92.556	11.381	9	15.0
E=50 - 59	92.000	10.116	7	11.7
F=60 or older	84.750	18.928	4	6.7
SEX				
M=Male	92.467	11.060	30	50.0
F=Female	93.033	9.711	30	50.0
RESIDENCE				
A=Ticop Piley	95.138	8.210	29	48.3
B=Chanom	83.250	15.097	8	13.3
C=Pigingan Pa-dok	88.667	12.659	9	15.0
D=Peday	96.111	4.014	9	15.0
E=Ekip	95.400	7.403	5	8.3
EDUCATIONAL ATTAINMENT				
A=None	100.000	0.000	1	1.7
B=Some elementary	81.818	13.775	11	18.3
C=Elementary grad	89.250	12.700	12	20.0
D=Some High School	96.778	4.116	9	15.0
E=High School grad	92.333	2.887	3	5.0
F=Some college	98.200	2.898	10	16.7
G=College grad	97.429	3.081	14	23.3
OCCUPATION				
A=Elementary stud	83.333	15.629	6	10.0
B=High School stud	96.333	6.351	3	5.0
C=College student	97.750	3.105	8	13.3
D=Dropout	91.500	12.021	2	3.3
E=Unemployed	94.000	0.000	2	3.3
F=Housewife	95.400	5.835	10	16.7
G=Farmer	89.765	11.278	17	28.3
H=Teacher	98.667	2.646	9	15.0
I=Other	85.000	21.000	3	5.0
TRAVEL FROM THE KARAO AREA				
A=Daily	98.056	3.404	18	30.0
B=Weekly	92.818	9.527	11	18.3
C=Monthly	90.813	12.362	16	26.7
D=less th monthly	88.400	12.070	15	25.0
INTERVIEW SCORES ON ORDINAL SCALE				
A=0	0.000	0.000	0	0.0

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Breakdown of Intelligibility Scores According to Other Factors (Continued)

Criterion Variable : SCORE ON IBALOI TAPE I

	Mean	S.D.	N	Pct.

INTERVIEW SCORES ON ORDINAL SCALE - (Continued)				
B=0+	83.333	14.364	3	5.0
C=1	85.111	13.560	9	15.0
D=1+	95.750	8.500	4	6.7
E=2	90.000	13.856	5	8.3
F=2+	97.429	3.207	7	11.7
G=3	90.182	12.432	11	18.3
H=3+	96.923	4.349	13	21.7
I=4	97.000	3.286	6	10.0
J=4+	100.000	0.000	2	3.3
K=5	0.000	0.000	0	0.0

Breakdown of Intelligibility Scores According to Other Factors

Criterion Variable : SCORE ON (BALOI TAPE 2 - 12.15.3

	Mean	S.D.	N	Pct.
For entire sample (Missing = 0)	89.750	11.176	60	100.0
AGE				
A=19 or younger	90.429	8.635	14	23.3
B=20 - 29	93.733	7.186	15	25.0
C=30 - 39	90.545	11.961	11	18.3
D=40 - 49	88.889	14.322	9	15.0
E=50 - 59	83.857	16.547	7	11.7
F=60 or older	82.500	9.147	4	6.7
SEX				
M=Male	88.533	11.741	30	50.0
F=Female	90.967	10.640	30	50.0
RESIDENCE				
A=Ticop Piley	91.034	10.642	29	48.3
B=Chanom	85.250	9.362	8	13.3
C=Pigingan Pa-dok	81.889	16.011	9	15.0
D=Peday	95.111	3.516	9	15.0
E=Ekip	94.000	8.944	5	8.3
GRADE LEVEL REACHED				
7=	92.286	6.849	7	11.7
6=	87.000	12.083	12	20.0
14=	97.000	2.646	13	21.7
13=	100.000	0.000	3	5.0
11=	93.000	0.000	2	3.3
12=	93.250	7.411	4	6.7
10=	95.000	8.124	4	6.7
8=	93.000	0.000	1	1.7
9=	90.000	4.243	2	3.3
5=	88.000	7.071	2	3.3
1=	73.000	0.000	1	1.7
4=	81.800	8.526	5	8.3
2=	62.333	12.858	3	5.0
	77.000	0.000	1	1.7
EDUCATIONAL ATTAINMENT				
A=None	77.000	0.000	1	1.7
B=Some elementary	76.818	12.999	1	18.3
C=Elementary grad	87.000	12.083	2	20.0
D=Some High School	91.778	6.200	9	15.0
E=High School grad	93.333	9.074	3	5.0
F=Some college	95.200	5.412	0	16.7
G=College grad	97.214	2.665	4	23.3

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Breakdown of Intelligibility Scores According to Other Factors (Continued)

Criterion Variable : SCORE ON IBALOI TAPE 2

	Mean	S.D.	N	Pct.
<hr/>				
OCCUPATION				
A=Elementary stud	85.500	9.854	6	10.0
B=High School stud	91.000	8.544	3	5.0
C=College student	96.125	3.482	8	13.3
D=Dropout	98.500	2.121	2	3.3
E=Unemployed	98.500	2.121	2	3.3
F=Housewife	93.600	6.204	10	16.7
G=Farmer	80.353	13.747	17	28.3
H=Teacher	96.778	2.489	9	15.0
I=Other	87.667	13.650	3	5.0
TRAVEL FROM THE KARAO AREA				
A=Daily	95.889	4.639	18	30.0
B=Weekly	90.727	6.214	11	18.3
C=Monthly	88.563	9.688	16	26.7
D=less th monthly	82.933	16.477	15	25.0
INTERVIEW SCORES ON ORDINAL SCALE				
A=0	0.000	0.000	0	0.0
B=0+	88.667	5.132	3	5.0
C=1	83.000	15.264	9	15.0
D=1+	78.500	15.780	4	6.7
E=2	85.400	12.260	5	8.3
F=2+	88.857	12.825	7	11.7
G=3	92.091	9.679	11	18.3
H=3+	93.462	5.666	13	21.7
I=4	97.333	2.582	6	10.0
J=4+	98.500	2.121	2	3.3
K=5	0.000	0.000	0	0.0

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

Chi-square Analysis of Proficiency Related to Education - 12.16.1

		EDUCATIONAL ATTAINMENT - (Y Axis)										
		BY										
		AVERAGED INTERVIEW SCORE - (X Axis)										
		Number	1	1	1	1	1	1	1	1	1	
		Row %	1	1	1	1	1	1	1	1	1	
		Column %	1	1	1	1	1	1	1	1	1	
		Total %	1	.5	1	1	1.5	1	2	1	2.5	
None	A		1	0	1	0	1	1	0	1	0	
			1	0.0	1	0.0	1	100.0	1	0.0	1	0.0
			1	0.0	1	0.0	1	25.0	1	0.0	1	0.0
			1	0.0	1	0.0	1	1.7	1	0.0	1	0.0
Some elementary	B		1	3	1	3	1	1	2	1	1	
			1	27.3	1	27.3	1	9.1	1	18.2	1	9.1
			1	100.0	1	33.3	1	25.0	1	40.0	1	14.3
			1	5.0	1	5.0	1	1.7	1	3.3	1	1.7
Elementary grad	C		1	0	1	5	1	2	1	0	1	1
			1	0.0	1	41.7	1	16.7	1	0.0	1	8.3
			1	0.0	1	55.6	1	50.0	1	0.0	1	14.3
			1	0.0	1	8.3	1	3.3	1	0.0	1	1.7
Some High School	D		1	0	1	0	1	0	1	1	3	1
			1	0.0	1	0.0	1	0.0	1	11.1	1	33.3
			1	0.0	1	0.0	1	0.0	1	20.0	1	42.9
			1	0.0	1	0.0	1	0.0	1	1.7	1	5.0
High School grad	E		1	0	1	1	1	0	1	0	1	0
			1	0.0	1	33.3	1	0.0	1	0.0	1	0.0
			1	0.0	1	11.1	1	0.0	1	0.0	1	0.0
			1	0.0	1	1.7	1	0.0	1	0.0	1	0.0
Some college	F		1	0	1	0	1	0	1	2	1	2
			1	0.0	1	0.0	1	0.0	1	20.0	1	20.0
			1	0.0	1	0.0	1	0.0	1	40.0	1	28.6
			1	0.0	1	0.0	1	0.0	1	3.3	1	3.3
College grad	G		1	0	1	0	1	0	1	0	1	0
			1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
			1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
			1	0.0	1	0.0	1	0.0	1	0.0	1	0.0
Column Totals			1	3	1	9	1	4	1	5	1	7
			1	5.0	1	15.0	1	6.7	1	8.3	1	11.7

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Chi-square Analysis of Proficiency Related to Education

EDUCATIONAL ATTAINMENT - (Y Axis)

BY - - - -

AVERAGED INTERVIEW SCORE - (X Axis)

		Number	1	1	1	1	1	1				
		Row %	1	1	1	1	1	1				
		Column %	1	1	1	1	1	1	Row			
		Total %	1	3	1	3.5	1	4	1	4.5	1	Row Totals
None	A		1	0	1	0	1	0	1	0	1	
			1	0.0	1	0.0	1	0.0	1	0.0	1	1
			1	0.0	1	0.0	1	0.0	1	0.0	1	1.7
			1	0.0	1	0.0	1	0.0	1	0.0	1	
Some elementary	B		1	1	1	0	1	0	1	0	1	
			1	9.1	1	0.0	1	0.0	1	0.0	1	11
			1	9.1	1	0.0	1	0.0	1	0.0	1	18.3
			1	1.7	1	0.0	1	0.0	1	0.0	1	
Elementary grad	C		1	2	1	2	1	0	1	0	1	
			1	16.7	1	16.7	1	0.0	1	0.0	1	12
			1	18.2	1	15.4	1	0.0	1	0.0	1	20.0
			1	3.3	1	3.3	1	0.0	1	0.0	1	
Some High School	D		1	3	1	2	1	0	1	0	1	
			1	33.3	1	22.2	1	0.0	1	0.0	1	9
			1	27.3	1	15.4	1	0.0	1	0.0	1	15.0
			1	5.0	1	3.3	1	0.0	1	0.0	1	
High School grad	E		1	1	1	1	1	0	1	0	1	
			1	33.3	1	33.3	1	0.0	1	0.0	1	3
			1	9.1	1	7.7	1	0.0	1	0.0	1	5.0
			1	1.7	1	1.7	1	0.0	1	0.0	1	
Some college	F		1	2	1	3	1	1	1	0	1	
			1	20.0	1	30.0	1	10.0	1	0.0	1	10
			1	18.2	1	23.1	1	16.7	1	0.0	1	16.7
			1	3.3	1	5.0	1	1.7	1	0.0	1	
College grad	G		1	2	1	5	1	5	1	2	1	
			1	14.3	1	35.7	1	35.7	1	14.3	1	14
			1	18.2	1	38.5	1	83.3	1	100.0	1	23.3
			1	3.3	1	8.3	1	8.3	1	3.3	1	
Column			1	11	1	13	1	6	1	2	1	60
Totals			1	18.3	1	21.7	1	10.0	1	3.3	1	100.0

Chi square = 81.563 Valid cases = 60
 Degrees of freedom = 48 Missing cases = 0
 Probability of chance = 0.002 Response rate = 100.0 %

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

Analysis of Proficiency Related to Age - 12.16.2

AGE - (Y Axis)

BY - - - -

AVERAGED INTERVIEW SCORE - (X Axis)

		Number	1	1	1	1	1	1	1			
		Row %	1	1	1	1	1	1	1			
		Column %	1	1	1	1	1	1	1			
		Total %	1	.5	1	1	1.5	1	2	1	2.5	1
			1	3	1	4	1	0	1	1	2	1
19 or younger	A	1	21.4	1	28.6	1	0.0	1	7.1	1	14.3	1
		1	100.0	1	44.4	1	0.0	1	20.0	1	28.6	1
		1	5.0	1	6.7	1	0.0	1	1.7	1	3.3	1
		1	0	1	2	1	0	1	1	2	1	1
20 - 29	B	1	0.0	1	13.3	1	0.0	1	6.7	1	13.3	1
		1	0.0	1	22.2	1	0.0	1	20.0	1	28.6	1
		1	0.0	1	3.3	1	0.0	1	1.7	1	3.3	1
		1	0	1	1	1	0	1	2	1	2	1
30 - 39	C	1	0.0	1	9.1	1	0.0	1	18.2	1	18.2	1
		1	0.0	1	11.1	1	0.0	1	40.0	1	28.6	1
		1	0.0	1	1.7	1	0.0	1	3.3	1	3.3	1
		1	0	1	1	1	1	0	1	0	1	1
40 - 49	D	1	0.0	1	11.1	1	11.1	1	0.0	1	0.0	1
		1	0.0	1	11.1	1	25.0	1	0.0	1	0.0	1
		1	0.0	1	1.7	1	1.7	1	0.0	1	0.0	1
		1	0	1	1	1	1	0	1	1	1	1
50 - 59	E	1	0.0	1	14.3	1	14.3	1	0.0	1	14.3	1
		1	0.0	1	11.1	1	25.0	1	0.0	1	14.3	1
		1	0.0	1	1.7	1	1.7	1	0.0	1	1.7	1
		1	0	1	0	1	2	1	1	0	1	1
60 or older	F	1	0.0	1	0.0	1	50.0	1	25.0	1	0.0	1
		1	0.0	1	0.0	1	50.0	1	20.0	1	0.0	1
		1	0.0	1	0.0	1	3.3	1	1.7	1	0.0	1
		1	0	1	0	1	1	1	0	1	1	1
Column Totals		1	3	1	9	1	4	1	5	1	7	1
		1	5.0	1	15.0	1	6.7	1	8.3	1	11.7	1

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

Analysis of Proficiency Related to Age

AGE - (Y Axis)

BY

AVERAGED INTERVIEW SCORE - (X Axis)

		Number	I	I	I	I	I	I				
		Row %	I	I	I	I	I	I				
		Column %	I	I	I	I	I	I	Row			
		Total %	I	3	I	3.5	I	4	I	4.5	I	Row Totals
19 or younger	A		I	2	I	2	I	0	I	0	I	
			I	14.3	I	14.3	I	0.0	I	0.0	I	14
			I	18.2	I	15.4	I	0.0	I	0.0	I	23.3
			I	3.3	I	3.3	I	0.0	I	0.0	I	
20 - 29	B		I	3	I	5	I	1	I	1	I	
			I	20.0	I	33.3	I	6.7	I	6.7	I	15
			I	27.3	I	38.5	I	16.7	I	50.0	I	25.0
			I	5.0	I	8.3	I	1.7	I	1.7	I	
30 - 39	C		I	2	I	2	I	2	I	0	I	
			I	18.2	I	18.2	I	18.2	I	0.0	I	11
			I	18.2	I	15.4	I	33.3	I	0.0	I	18.3
			I	3.3	I	3.3	I	3.3	I	0.0	I	
40 - 49	D		I	1	I	3	I	3	I	0	I	
			I	11.1	I	33.3	I	33.3	I	0.0	I	9
			I	9.1	I	23.1	I	50.0	I	0.0	I	15.0
			I	1.7	I	5.0	I	5.0	I	0.0	I	
50 - 59	E		I	2	I	1	I	0	I	1	I	
			I	28.6	I	14.3	I	0.0	I	14.3	I	7
			I	18.2	I	7.7	I	0.0	I	50.0	I	11.7
			I	3.3	I	1.7	I	0.0	I	1.7	I	
60 or older	F		I	1	I	0	I	0	I	0	I	
			I	25.0	I	0.0	I	0.0	I	0.0	I	4
			I	9.1	I	0.0	I	0.0	I	0.0	I	6.7
			I	1.7	I	0.0	I	0.0	I	0.0	I	
Column			I	11	I	13	I	6	I	2	I	60
Totals			I	18.3	I	21.7	I	10.0	I	3.3	I	100.0

Chi square = 49.914 Valid cases = 60
 Degrees of freedom = 40 Missing cases = 0
 Probability of chance = 0.270 Response rate = 100.0 %

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

T-Test Analysis of Intelligibility Means Divided According to Proficiency - 12.17.1

Variable under analysis - SCORE ON IDALOI TAPE 2

Variable used to group cases - INTERVIEW SCORES ON ORDINAL SCALE

Group 1| A-F

A=0
B=0+
C=1
D=1+
E=2
F=2+

Number of cases	= 28
Mean	= 84.86
Variance	= 164.33
Standard deviation	= 12.82
Standard error of the mean	= 2.47

Group 2 G-K

G=3
H=3+
I=4
J=4+
K=5

Number of cases	= 32
Mean	= 94.03
Variance	= 47.19
Standard deviation	= 6.87
Standard error of the mean	= 1.23

T-Test statistics

Difference (Mean X - Mean Y)	= -9.174
Standard error of the difference	= 2.656
t statistic	= 3.454
Degrees of freedom	= 58
Probability of t (One tailed test)	= 0.001
Probability of t (Two tailed test)	= 0.001

Mann-Whitney U = 658.0
Two-tailed probability = 0.002

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

T-Test Analysis of Intelligibility Means Divided According to Education - 12.17.2

Variable under analysis - SCORE ON IBALOI TAPE 2

Variable used to group cases - EDUCATIONAL ATTAINMENT

Group 1 A-C

A=None

B=Some elementary

C=Elementary grad

Number of cases	= 24
Mean	= 81.92
Variance	= 163.15
Standard deviation	= 12.77
Standard error of the mean	= 2.66

Group 2 D-G

D=Some High School

E=High School grad

F=Some college

G=College grad

Number of cases	= 36
Mean	= 94.97
Variance	= 27.74
Standard deviation	= 5.27
Standard error of the mean	= 0.89

T-Test statistics

Difference (Mean X - Mean Y)	= -13.056
Standard error of the difference	= 2.426
t - statistic	= 5.382
Degrees of freedom	= 58
Probability of t (One tailed test)	= 0.000
Probability of t (Two tailed test)	= 0.000

Mann-Whitney U	= 714.0
Two-tailed probability	= 0.000

A STATISTICAL ANALYSIS OF THE KARAD SURVEY DATA

T-Test Comparison of Scores on Ibaloi Tapes 1 & 2 - 12.17.3

SCORE ON IBALOI TAPE 1

Mean	= 92.75
Variance	= 104.79
Standard deviation	= 10.24
Standard error of the mean	= 1.33

SCORE ON IBALOI TAPE 2

Mean	= 89.75
Variance	= 122.82
Standard deviation	= 11.08
Standard error of the mean	= 1.44

T-Test statistics

Difference (Mean X - Mean Y)	= 3.000
Standard error of the difference	= 1.287
t - statistic	= 2.331
Degrees of freedom	= 59
Probability of t (One tailed test)	= 0.011
Probability of t (Two tailed test)	= 0.022

Correlation coefficient = 0.172

Valid cases	= 60
Missing cases	= 0
Response percent	= 100 %

Number of positive differences	= 31
Sum of the positive differences	= 880.5
Number of negative differences	= 20
Sum of the negative differences	= 445.5
Number of non-zero differences	= 51
Wilcoxon test statistic	= 445.5
Two-tailed probability	= 0.000

A STATISTICAL ANALYSIS OF THE KARAO SURVEY DATA

T-Test Analysis of Proficiency Means Divided by Education - 12.17.4

Variable under analysis - AVERAGED INTERVIEW SCORE

Variable used to group cases - EDUCATIONAL ATTAINMENT

Group 1 A-C

A=None

B=Some elementary

C=Elementary grad

Number of cases	= 24
Mean	= 1.69
Variance	= 0.89
Standard deviation	= 0.94
Standard error of the mean	= 0.20

Group 2 D-G

D=Some High School

E=High School grad

F=Some college

G=College grad

Number of cases	= 36
Mean	= 3.19
Variance	= 0.56
Standard deviation	= 0.75
Standard error of the mean	= 0.13

T-Test statistics

Difference (Mean X - Mean Y)	= -1.507
Standard error of the difference	= 0.223
t - statistic	= 6.757
Degrees of freedom	= 58
Probability of t (One tailed test)	= 0.000
Probability of t (Two tailed test)	= 0.000

Mann-Whitney U	= 754.0
Two-tailed probability	= 0.000



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